

BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

Leadership

Incentives

Scientific Management and World Economics

Labor's Interest in Waste Elimination

Obsolescence and Depreciation

and other important subjects in this issue

Engineering Societies Building
29 W. Thirty-Ninth St.
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JUNE, 1927

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Objects of the Taylor Society Incorporated

The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.
2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.
3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptation and application under varying and changing conditions.
4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.
5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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The membership of the Society comprises Members, Junior Members, Honorary Members, Life Members, Firm Members, Contributing Members and Student Associates. Application for membership should be made on a regular form which may be secured from the Society. New members may be elected directly to the grades marked*.

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AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

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Comment

IN this double-sized issue are brought together a collection of articles which furnish impressive evidence of the growing importance of scientific management in national and international thought, and incidentally evidence of the extending activities and contacts of the Taylor Society.

Mr. Hunt's report of the World Economic Conference at Geneva, to which he was a delegate in response to an official request that the International Management Institute name two experts who could discuss economic problems from the point of view of scientific management, reflects world interest in a method of approach to managerial—and economic—problems of which the Taylor Society has been the conspicuous representative from the day of its founding.

Mr. Tead's paper on leadership reflects activity of the Taylor Society as a co-operator with other similar organizations in the search for truths of human nature and human conduct fundamental to adequate understanding of the basic problems of management.

The group of papers presented at the Philadelphia Labor Conference are evidence of labor's interest in problems of management and in scientific management, and of co-operation of the Taylor Society in promoting the interchange of ideas and of information concerning conditions between labor and management.

The paper by Mr. Smith, together with the valuable group of discussions of that paper, is evidence of the profitable results of well-planned local section activities and of the policy of unfear- ing open-forum discussions characteristic of the Society. There is here most penetrating discussion of incentives—financial and non-financial.

Mr. Kimball's article is an appraisal by a competent and judicious authority of the influence of scientific management in the United States; it shows that that influence has been profound, even though there are but few conspicuous cases of Taylor methods applied to the entirety of a business—general administration as well as detail management. Mr. James' article is a penetrating inquiry into an important problem of accounting management, considered from the point of view of the manager.

Altogether this is a noteworthy issue.

Scientific Management and World Economics

Report on the Economic Conference at Geneva — Work of Important Committees —
Influence of Scientific Management — Challenge to Scientific Management

By EDWARD EYRE HUNT

American Expert at the World Economic Conference

I. Foreword

By the Editor

THE following report by Mr. Edward Eyre Hunt, an expert invited by the president of the World Economic Conference held at Geneva May 4 to 23, 1927, will be much more significant to the reader if prefaced by the record of a chain of events which led to his mission.

Stimulated by the perplexing problems of economic rehabilitation since the conclusion of the World War, Europe, has been giving increasing attention to the causes of American prosperity and particularly to the principles and practices of scientific management as one of the factors in that prosperity. The American literature of management has been studied assiduously in Europe, and official and unofficial commissions have been sent to America to investigate industrial conditions and methods. The universality of the acceptance of scientific management principles throughout Europe has been reported as "astounding."

The first definite and official manifestation of this interest was the First International Congress on Scientific Management at Prague, in 1924, conducted under the auspices of the Czechoslovak Government through the Masaryk Academy. This was followed by the Second International Management Congress at Brussels in 1925. A third congress is to be held at Rome in September, 1927.

As a result of conferences of delegates at the Prague and Brussels congresses, there was organized in 1926 an international committee—the International Permanent Delegation of the Scientific Management Congresses—of which the object is promotion of international congresses. Co-operating with this international committee there is, in the United States, a Committee on American Participation in International Management Congresses, of which the members are appointed by the various management societies.

Perhaps most significant of all these manifestations of world interest in scientific management is the International Management Institute, recently established at Geneva. Its object is to serve as an international clearing house of information concerning management from all countries. This Institute is under the tri-part auspices of the International Labor Office, the International Permanent Delegation of Scientific Management Congresses, and the Twentieth Century Fund of Boston; and the Laura Spelman Rockefeller Memorial has shown its interest through a financial contribution. As representative of the Americans interested, Mr. Henry S. Dennison was in Geneva during the early months of 1927, assisting in the final steps of organization of the Institute.

Early in April came cables from Mr. Dennison to the Tabor Society advising that the administration of the World Economic Conference, which was soon to open in Geneva, had requested the International Management Institute to commission two technical delegates to the Conference who could participate in discussions of rationalization (scientific management) and of rationalization as applied to cartels. One of these representatives was to be a European and the other an American. Francesco Mauro, a distinguished Italian engineer and President of the International Permanent Delegation of the Scientific Management Congresses, had been designated as the European representative. The Americans interested in scientific management were requested to act expeditiously in selecting a representative.

The American group was very fortunate in securing prompt financial support¹ for such a

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mission, and in inducing Mr. Edward Eyre Hunt to accept the service. Mr. Hunt has precisely that combination of qualities which was desired; understanding of the principles and practices of scientific management, familiarity with economic problems and experience in international contacts. He had had a prominent part in relief and rehabilitation work in Belgium under Herbert Hoover, and in France and Italy under the American Red Cross, had been a member of the Hoover Committee on Elimination of Waste in Industry, Secretary of the Harding Conference on Unemployment and Secretary to the U. S. Coal Commission, had done much special work of an economic and engineering nature for Secretary Hoover, and had edited a book on scientific management.

Mr. Hunt sailed April 20 on the same ship as the official delegation of the United States to the Economic Conference, and although not a member of that delegation, was cordially received into its society and given its co-operation in his special service. The remainder of the story is to be found in Mr. Hunt's report.

II. The World Economic Conference

By EDWARD EYRE HUNT

SCIENTIFIC management has been given world-wide recognition and approval by the World Economic Conference, which met at Geneva from May 4 to 23. For the first time in the history of the movement, representatives of scientific management have been officially invited to sit in a world gathering called to plan for the future of industry, commerce and agriculture; to address its meetings, to draft its resolutions, and to work in collaboration with leading industrialists, economists and statesmen from all quarters of the globe. For the first time also in the history of scientific management, the movement seems organized to take advantage of its great opportunity, for it is now equipped with a central clearing-house in the International Management Institute, with headquarters at Geneva, and with an open forum in the International Congress of Scientific Management, which meets biennially; this year in Rome.

The World Economic Conference marks an important step in post-war recovery. To the Preparatory Committee of thirty-five, representing

twenty-one nationalities, which worked for more than a year on the composition of the Conference and its agenda, and to the Economic Section of the League of Nations which prepared and published an amazing amount of data, is due much of its success. Before the Conference met, the Secretariat had published more than sixty reports—a miniature five-foot shelf on world economic conditions and problems. One of these was a helpful memorandum on "Rationalization in the United States" by Mr. David Houston; another was a pamphlet prepared by the International Labor Office on "Scientific Management in Europe."

"Rationalization" is a new word to American ears, and has not been satisfactorily defined. It is a slogan which expresses with a certain vagueness, perhaps, what we mean by science in management and administration. Mr. Houston analyzed it into three elements: stabilization, standardization and industrial simplification, and showed that progress had been made in all three fields in the United States. He referred to the American effort to minimize the extremes of the business cycle, the salutary influence of the Federal Reserve banking system and the rôle played by the construction industries which provide a sort of balance-wheel to industry as a whole. He described our statistical services and methods of industrial research as stabilizing influences, and the efforts to stabilize employment. Finally, he referred to the work of standardization and the development of simplification under the auspices of the Department of Commerce.

The pamphlet on Scientific Management in Europe began with a definition: "Scientific management is the science which studies the relations between the different factors in production, and especially those between the human and the mechanical factors. Its object is to obtain, by the rational utilisation of these various factors, the optimum output." In a later paragraph the pamphlet states that "already there is in certain countries a tendency to call scientific management by the more appropriate name of rational organization of production, and the various branches of the movement known in Germany as 'industrial rationalisation'—standardization, industrial concentration, mass production and distribution—are already to a large extent borrowing the methods and profiting by the results of scientific management as

defined above." The pamphlet sketched the developments in these directions in Germany, Great Britain, Russia, Poland and Czechoslovakia, mentioning the national organizations which are working for scientific management in Austria, Belgium, Czechoslovakia, France, Germany, Great Britain, Italy, the Netherlands, Poland, Soviet Russia, Sweden and Switzerland, and the newly formed international organizations, the International Management Institute and the Scientific Management Congresses.

In addition to all the careful documentation published by the Secretariat, the World Economic Conference owed much to the atmosphere of Geneva—the Capital of the League, if we may call it such—a city set apart from the important world capitals, blessed with snow-thatched mountains all about it and a lake of lapis-lazuli at its feet, and possessing in its isolation from the smoke and noise and bustle of world-capitals a kind of detachment and a sense of proportion which are valuable in any international gathering. Geneva is like the city of Washington in this respect. And just as we have found that the atmosphere of Washington is conducive to success in certain kinds of conferences, because the national point of view is more easily secured there than in New York or Chicago, New Orleans or San Francisco, so the atmosphere of Geneva seems to contribute to international activities by creating and supporting an international point of view.

But there are plenty of obstacles, even in Geneva. The Conference consisted of one hundred and ninety-four members and one hundred and fifty-seven experts, drawn from fifty countries. Geneva has no hall fit for their accommodation, and there is no one language in which men may make themselves understood. The Hall of the Reformation, where the plenary sessions were held, is a gloomy old place, with wretched acoustics and bad lighting arrangements. The strain of listening day after day to speeches always delivered at least twice, sometimes thrice—to eminent Scandinavians, Chinese or Japanese endeavoring to express themselves in broken English, or to Poles, Czechs and South Americans endeavoring to express their thoughts in broken French, can better be imagined than described. And always, after every address, it was necessary to take an equal amount of time for the translation, usually delivered in a turmoil of con-

versation and restless movements to and fro. The League has ambitious plans for an adequate meeting place, and architects' plans were submitted and judged while the Economic Conference was in session, but no decision was reached. Plans for simultaneous translation are also under way, so that when a speaker addresses a future gathering, translators will repeat his words in their various tongues, and the auditors, with earphone attachments, may plug in on any one of several languages.

Along with these handicaps went another: the lack of easily accessible and comfortable committee rooms. It is a fifteen minutes' walk from the Hall of the Reformation to the Secretariat of the League of Nations on the Quai Woodrow Wilson, where some of the committee meetings were held in pavilions better suited to serving tea than to discussing world affairs.

But having spoken of the physical handicaps, one must pay a warm tribute to the League Secretariat and to the conferees, who worked steadily and with extraordinary unanimity and devotion. If the Russians chose to use the Conference as a forum for ideas which were news in 1917 but which seemed stale and unprofitable in 1927, that was their lookout, and it did not much hamper the workings of the Conference as a whole. Certainly it did not spoil the general spirit of reconciliation and collaboration in which the task of reconstruction was undertaken.

The Conference personnel no doubt contributed much to its success. The members were chosen, with few exceptions, by Governments, but they were not spokesmen of official policy, and their qualifications covered a wide range. There were producers, employers and workers, farmers, traders, financiers, economists and consumers. The United States of America was fortunate in having as the head of its delegation Mr. Henry M. Robinson, president of the First National Bank of Los Angeles and member of the Dawes Commission; and as the other members, Mr. Norman Davis, formerly Under Secretary of State; Mr. John W. O'Leary, president of the United States Chamber of Commerce; Dr. Alonzo E. Taylor, of Stanford University; and Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, of the United States Department of Commerce. Mr. Roland W. Boyden, former unofficial American observer on the Reparations Commission and one

of the representatives of the International Chamber of Commerce, gave distinguished service. The staff of experts attached to the American delegation was particularly able and well selected. The head of the British delegation was Sir Arthur Balfour, and prominent among its members was Mr. W. T. Layton, editor of the London *"Economist"*. M. Loucheur headed the French delegation, with M. Jouhaux, the noted labor-leader, M. Serruys, of the Ministry of Commerce, M. Gautier, and M. Peyerimhoff, and a long list of noted men as experts. The German delegation was distinguished, having Herr von Siemens, Herr Trendelenburg, Herr Lammers, Herr Hermes, and Herr Eggert. Among the Italians was Signor Pirelli. Among the Scandinavians was Professor Karl Gustav Cassel, one of the most noted economists of Europe. And the president of the Conference was M. Georges Theunis, of Belgium, the former premier.

It was in essence a European conference. The Preparatory Committee had given first place in the agenda to "problems of commercial and tariff policy," and second place to "proposals for international industrial agreements," but noted that while the "most important questions on the Agenda are clearly of world importance, some of the difficulties are to a peculiar extent difficulties in the first instance of Europe." The "special features in the European situation," as the Preparatory Committee suggested, were uppermost in the thoughts of the conferees.

But the American attitude and contribution were vital. At least half of the speeches in the plenary sessions referred with admiration and astonishment to America's post-war prosperity and world leadership, and the committee meetings on commerce and industry were deluged with references to America, the home of rationalization, the possessor of a continental market, great natural resources, high wages, increasing output per worker, and high living standards.

Mr. Robinson as head of the American delegation helped to focus this interest when he made his opening address to the Conference on rationalization. From the American point of view as he explained, rationalization includes not only stabilization, standardization and simplification in industry and commerce, but the elimination of waste and the avoidance of that irrational exploitation

of industry and commerce which results from too much Government in business. He emphasized the fact that rationalization does not necessarily mean industrial combination; that cartels, as understood in Europe, are not a part of the American experience, and that American sentiment is strongly opposed to some of the conditions which cartels attempt to bring about, namely, restraint of trade and restriction of competition. He tactfully stated that the American delegation had no idea that our experience necessarily applies in different circumstances and in different countries, but hoped only that it might throw light on certain problems before the Conference. Finally, he showed that prosperity must be general; that no one industry can be really prosperous in a period of general business depression and instability; that no nation can enjoy full economic activity if its neighbors are impoverished; hence, that the American people are profoundly interested in the peace and prosperity of Europe and of the rest of the world.

The agenda of the Conference as submitted by the Preparatory Committee was as follows:

FIRST PART

Principal features and problems as seen from the point of view of different countries.

Analysis of economic causes of the present disturbed equilibrium in commerce and industry.

Economic tendencies capable of affecting the peace of the world.

SECOND PART

I. Commerce

1. Liberty of trading
 - (a) Import and export prohibitions and restrictions.
 - (b) Limitation, regulation or monopolisation of trade.
 - (c) Economic and fiscal treatment of nationals and companies of one country admitted to settle in the territory of another.
2. Customs tariffs and commercial treaties.

Obstacles to international trade arising from:

 - (a) Form, level and instability of import and export tariffs.
 - (b) Customs nomenclature and classification.
3. Indirect methods of protecting national commerce and shipping.
 - (a) Subsidies, direct or indirect.
 - (b) Dumping, and anti-dumping legislation.
 - (c) Discrimination arising from the conditions of transport.
 - (d) Fiscal measures discriminating against foreign imported goods.
4. Repercussion upon international commerce of reduced purchasing power.

II. Industry

1. Situation of principal industries (productive capacity, output, consumption and employment).
2. Nature of present difficulties in industry; their industrial, commercial and monetary causes.
3. Possibilities of action:
 - (a) Organisation of production, including, in particular, international industrial agreements, considered from the point of view of production, of the consumer and of labour; their legal position; their connection with Customs problems.
 - (b) Importance of collection and prompt exchange of statistical information with regard to industrial production.

III. Agriculture

1. The present position of agriculture compared with pre-war conditions, in respect of production, consumption, stocks, prices and free circulation of agricultural products.
2. Causes of present difficulties.
3. Possibilities of international action:
 - (a) Development of, and international collaboration between, producers' and consumers' organisations, including the different systems of co-operative organisation.
 - (b) Continuous exchange of all relevant information concerning agricultural conditions, scientific and technical research, agricultural credit, etc.
 - (c) Development of the purchasing power of agricultural producers.

After a week of plenary sessions the conference was subdivided into three large committees—on Commerce, on Industry, and on Agriculture—and began the study of the material within the competence of each.

In the Committee on Industry a notable change was made in the agenda. The emphasis on rationalization in the plenary sessions led the Committee to plan its main discussion about two topics: the first being rationalization; the second, cartels, or "international industrial agreements." The discussion of the first topic revealed an unexpected unanimity of opinion. The labor leaders accepted scientific management as inevitable and demanded a share of the benefits. Some of the consumer groups stressed the need of consumer benefits. The employers of all countries were a unit in praising better methods. And the resolutions unanimously adopted by the Committee on Industry and eventually by the entire Conference represented a liberal and enthusiastic approval of scientific management, asserting "the urgent need of greater, more far-reaching and better co-ordinated efforts in this field." The Conference specifically recommended that the "Economic Organization of the League

should keep in touch with the institutions specially concerned with this subject, and should include a note of its development in its reports on industrial conditions."

The whole of the resolution on rationalization follows:

GENERAL CONSIDERATIONS

The Commission took as its central problem the question of how costs of production, and therefore prices, could be reduced, with the object of securing a better equilibrium between productive capacity and demand without adversely affecting the interests of the consumer or the worker. In particular, with this object in mind, it considered: (1) the question of rationalisation in its various aspects and in this connection, (2) international industrial agreements, and (3) the collection and exchange of information with regard to industrial conditions. It has been mainly preoccupied with the European situation, for it is that situation which at the moment presents the gravest difficulties and calls for the most careful consideration. The problems which arise and the recommendations submitted by the Conference are not entirely new. The need at the present time is to accelerate a process of evolution which has been operative for many years. That need has been intensified by the events of the last decade. To this end the moral prestige of the League which has taken up these problems, the preparatory work which has been carried on for many months with the aid of economists of the highest standing, and the interesting and full discussions of the Conference itself have certainly attracted the attention of the public and have imparted a new energy and impulse.

RATIONALISATION

The first of these problems is that of rationalisation, by which we understand the methods of technique and of organisation designed to secure the minimum waste of either effort or material. It includes the scientific organisation of labour, standardisation both of material and of products, simplification of processes and improvements in the system of transport and marketing.

The Conference has unanimously recognized the benefits of rationalisation and of scientific management and it asserts the urgent need of greater, more far-reaching and better co-ordinated efforts in this field.

While conscious of the advantages of rationalisation, both in the lowering of costs of production and of prices and in expanding markets, the Conference has not been blind to the temporary unfavourable consequences which its application may involve in the case of certain categories of workers. Though, both directly and as consumers, the latter should in due course obtain their share of the advantages of a better organisation of production, they may be adversely affected for a time by temporary unemployment while readjustments are being made. In the following resolutions, special account is taken of the legitimate anxiety which may thus be occasioned.

In view of the importance of this question of rationalisation, the Conference considers it desirable that the Economic Organisation of the League should keep in touch with the insti-

tutions specially concerned with this subject, and should include a note of its development in its report on industrial conditions.

RESOLUTIONS

The Conference considers that one of the principal means of increasing output, improving conditions of labour and reducing costs of production is to be found in the rational organisation of production and distribution.

The Conference considers that such rationalisation aims simultaneously:

- (1) At securing the maximum efficiency of labour with the minimum of effort;
- (2) At facilitating by a reduction in the variety of patterns (where such variety offers no obvious advantage) the design, manufacture, use and replacement of standardised parts;
- (3) At avoiding waste of raw materials and power;
- (4) At simplifying the distribution of goods;
- (5) At avoiding in distribution unnecessary transport, burdensome financial charges and the useless interposition of middlemen;

Its judicious and constant application is calculated to secure:

- (1) To the community greater stability and a higher standard in the conditions of life;
- (2) To the consumer lower prices and goods more carefully adapted to general requirements;
- (3) To the various classes of producers higher and steadier remuneration to be equitably distributed among them.

It must be applied with the care which is necessary in order, while at the same time continuing the process of rationalisation, not to injure the legitimate interests of the workers; and suitable measures should be provided for cases where during the first stage of its realisation it may result in loss of employment or more arduous work.

It requires, further, so far as regards the organisation of labour in the strict sense of the term the co-operation of employes, and the assistance of trade and industrial organisations and of scientific and technical experts.

The Conference accordingly recommends that Governments, public institutions, trade and industrial organisations or public opinion as the case may be:

- (1) Should lead producers to direct their endeavours along the lines indicated above, and, in particular:
 - (a) To encourage and promote in every way the investigation and comparison of the most adequate methods and most practical processes of rationalisation and of scientific management, and of the economic and social results obtained thereby;
 - (b) To apply these endeavours in industry, agriculture, trade and finance, not merely to large but also to medium and small undertakings, and even to individual workers and handicraftsmen, bearing in mind the favourable effects which they may have in household organisation and amenities;
 - (c) To give special attention to measures of a kind calculated to ensure to the individual the best, the healthiest and the most worthy employment, such as vocational selection, guidance and training, the due allotment of time between work and leisure, methods

of remuneration giving the worker a fair share in the increase of output, and, generally conditions of work and life favourable to the development and preservation of his personality;

- (2) Should carry on systematically on an international as well as a national basis the standardisation of materials, parts and products of all types which are of international importance, in order to remove the obstacles to production and trade which might arise from a purely national policy of standardisation.

- (3) Should undertake on an international basis investigations for ascertaining the best methods employed and the most conclusive results obtained in every country in the application of the principles set out above, utilising the investigations already made in certain countries and encouraging the exchange of information among those concerned.

- (4) Should spread in all quarters a clear realisation of the advantages and the obligations involved in rationalisation and scientific management as well as of the possibility of their gradual achievement.

In this emphatic and unanimous statement, the scientific management movement is confronted with a challenge of the utmost importance. If through its world organizations and its national associations, such as the Taylor Society in the United States, the *Société d'Encouragement pour l'Industrie Nationale* in France, the *Zentralverband für wirtschaftliches Schaffen* in Austria, the Masaryk Academy of Labor in Czechoslovakia, the *Reichskuratorium für Wirtschaftlichkeit* in Germany, and the *Ente Nazionale Italiano per l'Organizzazione Scientifica del Lavoro* in Italy, it can meet the needs and guide the developments foreseen by the World Economic Conference, its social and economic contribution will be immense.

In the discussion of cartels the Committee on Industry was much less successful. Fundamental differences of opinion were revealed which proved irreconcilable. In the end it probably would have been better to publish the points of view exposed in the discussions by the various groups, without any attempt at reconciliation; but the opposite policy prevailed, and the resolutions were a compromise which really pleased nobody. As a basis for the discussion the International Management Institute of Geneva contributed two important pamphlets on Rationalization and Cartels: the first, by Dr. H. S. Person of the Taylor Society, the second, by Dr. H. M. Spitzer of the Institute Staff. Dr. Person's paper was so important that it is included as a part of this report. Dr. Spitzer's paper outlined the tendencies in Europe towards industrial consolidation, discussed the possible savings

from the formation of cartels, including the financial advantages, but clearly showed that they exert a direct and indirect restraint on competition. Finally, he showed that cartels may effect economies in distribution. Both of these papers were drawn upon in framing the final resolutions on cartels.

The discussions showed marked apprehension on the part of labor and the consumer groups, and dubious support of cartels on the part of some of the employer groups. The Committee members might almost have imagined that they were listening to a debate on the American trusts thirty years ago. Indeed, an echo of the controversies over "good" and "bad" trusts is to be found in the preamble to the resolutions, where the Conference stated that cartels are not a subject "upon which any conclusion of principle need be reached, but a development which has to be recognized and which, from this practical point of view, must be considered as good or bad according to the spirit which rules the constitution, and the operation of the agreements, and in particular according to the measures in which those directing them are actuated by a sense of the general interest."

The American experience in controlling trusts and in maintaining a regime of competition was frequently cited. Some form of control, both national and international, was advocated by certain labor and consumer representatives; but the only concrete suggestions as to control in the international field were such as to command little support. Taking another leaf out of the book of America's experience with big business, the Conference stated that "the publicity given in regard to the nature and operations of agreements constitutes one of the most effective means, on the one hand, of securing the support of public opinion to agreements which conduce to the general interest, and on the other hand, of preventing the growth of abuses."

Finally, the Committee on Industry and the Conference as a whole recommended the collection of statistical data similar to those collected by the United States Department of Commerce, and proposed that the League should "take all suitable measure so that Governments, in collaboration with the chief industries, should arrive at international agreements with reference to the definition of the terms, the methods, and the scope of statistics."

The resolutions of the Committee on Commerce, adopted by the Conference, represented even more imposing achievements than those of the Committee on Industry. This Committee surpassed any expectations which might have been held before the Conference met. Its agenda bristled with difficulties. The items covered liberty of trading—not to be confused with "free trade," as President Theunis pointed out—the form of customs tariffs, and finally tariff levels and commercial policy. The Committee declared that a most significant sign was the desire of all members that the Conference might "in some way mark the beginning of a new era, during which international commerce will successively overcome all obstacles in its path that unduly hamper it, and resume that general upward movement, which is at once a sign of the world's economic health and the necessary condition for the development of civilization." It condemned the system of import and export prohibitions and the privileges sometimes granted to Government enterprises, and recommended a more liberal policy respecting foreign nationals and companies in the exercise of their commercial activities. It made a number of important suggestions for the consideration of the Diplomatic Conference convened under League auspices for November 14, 1927, proposing the adoption of a number of protocols by which the recommendations of the Economic Conference might be given effect.

The Committee and finally the Conference recognized that harm results from high and constantly changing tariffs; that an improvement in economic conditions will result from increased facilities for international trade; that tariffs are not only a matter of domestic concern, but a matter of world concern as well; and that some of the causes for increasing trade barriers in the post-war period have largely disappeared, while others are diminishing in importance. With all these things in mind, the Committee on Commerce declared and the Conference adopted a statement "that the time has come to put an end to the increase in tariffs and to move in the opposite direction."

It proposed that this policy should be given effect (1) by national action to remove or diminish those tariff barriers that "gravely hamper trade, starting with those which have been imposed to counteract the effects of disturbances arising out of the war;" (2) by bilateral action in concluding

commercial treaties; (3) by abandoning the practice of "putting into force, in advance of negotiations, excessive duties established for the purpose of bargaining whether by means of *tarifs de combat* or by means of general tariffs;" (4) by an effort on the part of the Economic Organization of the League to secure "further action by the respective States with a view to promoting the equitable treatment of commerce by eliminating or reducing the obstructions which excessive customs tariffs offer to international trade."

It further condemned the imposition of differential internal taxes on imported goods. It declared that the free circulation of raw materials is one of the essential conditions of healthy industrial and commercial development, and hence that "export duties should only be resorted to to meet the essential needs of revenue or some exceptional economic situation or to safeguard the vital interests of the country, and that they should not discriminate between foreign destinations." In order to restore the system of long term commercial treaties securing equality of treatment, the Conference adopted the Committee's recommendation that "the widest and most unconditional interpretation should be given to the most-favored-nation clause" as regards customs duties and conditions of trading, recognizing that each nation must judge for itself in what cases and to what extent this fundamental guarantee should be embodied in any particular treaty."

After tariff barriers and commercial treaties, the report took up certain indirect means of protecting national trade and national navigation; direct and indirect Government subsidies; "dumping," and discriminations arising from conditions of transport. As to "dumping" the resolution "considers that dumping should be reduced to a minimum" and that importing countries "which find themselves compelled to take defensive measures against dumping should not resort to excessive, indirect or vexatious measures which would have a more far-reaching effect than is intended." As to conditions of transport the Conference recommended a wide range of activities.

There is little doubt that the resolutions on commerce, if carried into effect by League protocols and by action on the part of the various Governments, will have great influence on European commercial and industrial recovery. The

resolutions on agriculture were less satisfactory. The Committee on Agriculture and the Conference as a whole regarded "as a vital economic question the increase of agricultural production, and, with this in view, the placing of agriculture on an equal footing with industry by enabling all those engaged in agriculture to obtain a satisfactory standard of living, and a normal return for their labor and on their capital," but the methods proposed were vague. The resolutions called for the adoption of technical improvements, the scientific organization of production and stock-breeding, of the campaign against the diseases and the enemies of plants and animals, of marketing, of the standardization of agricultural products, of the search for outlets, and of credits and insurance. The co-operative movement was praised. It was pointed out that producer and consumer co-operatives should collaborate more closely and Governments were called upon to create or encourage the development of mutual credit institutions. The resolutions called for the removal of hindrances to the free circulation of and trade in agricultural products, "in so far as their removal does not endanger the vital interests of the different countries and their workers;" stressed the need of an equitable balance between industry and agriculture; urged the abandonment of the system of export prohibitions and export duties, "with the exception of taxes levied for the benefit of the industry concerned," and called for a greater stability in customs tariffs. They also appealed for more extensive studies of the agricultural situation the world over, and the collection and publication of agricultural statistics.

In its general resolutions the World Economic Conference called attention to the heavy burden of armament expenditures and expressed the hope that success might crown the efforts to secure limitation and reduction of armaments. It wisely said that successful action on its recommendations depends "not so much upon the good will of Governments and administrations but upon an informed and supporting public throughout the world." It called the attention of the Council of the League of Nations to the "well-balanced composition of the Preparatory Committee" of the Economic Conference—a hint as to the need of strengthening and amplifying the Economic Section of the League in order to follow up the Conference recommendations.

Something of the spirit of good humor in which the task at Geneva was carried through is embodied in a set of verses, the first of which came from the British delegation and were attributed to Sir Arthur Balfour:

Hark! the exporting Nations sing
World Free Trade's the only thing.
Open doors and tariffs mild
Marx and Mammon reconciled!
Soviets, Balkans, do not frown,
Let us knock your tariffs down
Else your trade (and ours as well)
Cannot help but go to Hell.
Hark! the exporting Nations sing
World Free Trade's the only thing.

To this the Americans retorted:

Churchill listens while they sing
"World Free Trade's the only thing!"
Balfour jokes while Layton smiles,
Both forget the Tory wiles—
Sugar grown on subsidy,
Rubber a monopoly,
Sheltered lace and cutlery,
Socks and clocks no longer free—
Churchill listens while they sing
"World Free Trade's the only thing!"

And then the German version beginning:

Horch! Die Andern singen mit!
Aber gerne tun sie's nit.

The verses indicate, what everyone knows, that resolutions of a conference are only a prelude to action—not a substitute for action. They are a beginning, and a good beginning. The American delegation did not express itself on the recommendations which involved increased activities on the part of the League of Nations, since we are not members of the League and contribute no funds to its support. But all at Geneva recognized in our limited collaboration a contribution of great importance.

During the final plenary session President Theunis, his tired face all smiles, sat in a great oak chair gazing at the Conference, his gavel in hand. At his right was Sir Eric Drummond, Secretary of the League; at his left, M. Albert Thomas, head of the International Labor Office. On the floor was constant movement, except when the aisles filled and everyone sat silent listening to a favorite orator. Messengers with "S. d. N." in white on blue armbands, threaded about with translations of the addresses, and there was an undertone of conversation.

M. Jouhaux, the French labor leader, possessing a voice like a Wagnerian *basso*, alone of the conferees could fill the gloomy Hall of the Reformation. His colleague, M. Loucheur, the "father of the Conference," was everywhere at once, smiling like an amiable satyr at the success of his efforts. Mr. Robinson with his plume of snow-white hair was conspicuous among the delegates; the woman delegates always attracted notice, and everyone stared at the Soviet delegation, sitting like tired school-boys at their desks. In the galleries the audience hung like young swallows over the edge of their nest in a painful effort to catch the words of the laboring speaker on the rostrum, or peered through opera-glasses at the dignitaries on the floor.

At last all the set speeches were delivered. President Theunis left his oaken throne, walked rapidly down to the reading desk, spread out a bulky manuscript and began summing up in admirably lucid and practical words. He sketched the background of the Conference, spoke of the relation of economic policies to world peace, outlined the recommendations of the three committees, and in closing, said:

"We have worked loyally together to secure economic peace, on which, indeed, political peace depends. This Conference is an assembly of persons who have been brought into touch with realities—always harsh and often disappointing—but with realities in which truth, sooner or later, always prevails. Our advice and recommendations will in all probability not be followed immediately on the scale we would desire.....Today we have completed the first stage, and we may well be proud of what we have done. But we must not forget that our success will depend on the measure of our perseverance.

"After the terrible calamity experienced by Europe, the results of which have been felt throughout the whole world, we cannot expect that order will be restored as if by enchantment. But whether the fruits of our labors are gathered by ourselves or by those who succeed us, we are animated by the firm determination to unite our efforts to those of friends who share our hopes, our enthusiasm and our ideals.

"We know that the time will come when mankind will be the happier for our work.

"And that alone, ladies and gentlemen, will enable us to be proud of what we have done."

III. Scientific Management and Cartels²

By H. S. PERSON

A. Scientific Management

1. Stabilization and Economy Through Control is the Central Idea in Scientific Management.

a. *Production*: Scientific management was developed first through the establishment of standards of product, materials, machines, tools and methods. On the basis of these standards, control of quantity, quality and details of flow of work have become possible. This control results in most economical use of materials, machine-time, labor-time and overhead.

b. *Merchandising and selling*: Realization that regularity of orders is a necessary precedent to effective utilization of methods of production control, and the pressure of a buyers' market after the war, turned attention to stabilization or standardization of the flow of orders. This stabilization is secured by market analysis (discovery of demand), sales programs based on discovered demand, quotas (standards of detail accomplishment) and advertising and sales methods suited to the particular market and commodity.

c. *General administrative control*: Scientific management in production developed the concept of a program and detail tasks for the production department; scientific management in merchandising developed the concept of a program and detail tasks for the sales department; these concepts together developed the concept of a program and detail tasks for the enterprise as a whole. The consequence is business programs for the enterprise based on studies of industrial tendencies, tasks for each major department and the development of a technique of control and co-ordination of departments for most economical achievement of the enterprise program.

d. *Industrial relations*: Coincident with the development of these other concepts of stabilization has come development of the concept of stabilizing labor relations—elimination or reduction of one of the principal causes of instability and cost in management. This concept of stabilization has evolved from the establishment of good working

conditions to the stabilization of employment, participation of workers in profits and in general establishment of workers' good will.

e. *Note*: It should be observed that the historical development of scientific management has been from stabilization of shop processes to stabilization of all the processes of the enterprise; the motivation being economy of industrial energies, first through elimination of wastes of unessential energies, and second through more effective application of energies utilized.

2. Control of Conditions, Stabilization and Economy are Accomplished by Scientific Management in Two Ways: through

a. *Research and experiment*: to discover industrial tendencies, market demand, most effective sales methods, most effective production methods and most stable labor relations, for the particular enterprise, the particular products and the particular market.

b. *Systems of control* of operations to insure utilization of the information secured by research and experiment; comprising definitions of purpose, and policies of the enterprise, formulation of master and departmental programs, formulation of projects and plans, formulation of detail procedures and provisions for promoting common understanding of these.

3. The Results of Scientific Management are, in general:

- a. To the enterprise, greater or more regular profits.
- b. To the workers, higher wages, better conditions of work and more regular employment.
- c. To society, lower costs of commodities, more uniform quality of products and more dependable service.

B. Cartels, Pools and Combinations

1. Stabilization is also the Central Idea in Cartels, Pools and Combinations.

a. But whereas the mental attitude and technical procedures of scientific management have not up to the present time lent themselves to monopolistic control, have been developed in competitive industries and have automatically carried with them social benefits, cartels, pools and combinations are in their nature monopolistic, lend them-

²Memorandum prepared for Mr. Hunt's use. It was published in French, German and English by the International Management Institute for the delegates at the Conference.

selves to restriction of competition and control of prices, and may or may not carry with them economic and other social benefits.

b. *On the continent of Europe* cartels have been developed generally under the supervision of states with strong control over industry. European cartels have been classed, as to purpose, as follows:^a

- (1.) Agreements on sales price and conditions of sale
- (2.) Territorial division of markets
- (3.) Pooling of profits
- (4.) Restrictions on production

c. *In England*, individualistic in social policy but with a strong central government, cartels, pools and combinations have been restricted because of their monopolistic implications.

d. *In the United States*, individualistic in social policy and with limited control by a central government, pools and combinations of many types have been developed. The history of these pools and combinations is the record, on the one hand, of agreements between enterprises in an individualistic and competitive industrial society to combine usually for some form of restriction of competition for common and individual advantage, and on the other hand, of legislation by the Federal Government to limit combination and preserve competition as a social policy. Pools and combinations in the United States have been classified, as to purpose, as follows:⁴

- (1.) Percentage of division of business
- (2.) Curtailment of output
- (3.) Territorial division of market
- (4.) Centralized sales plans
- (5.) Central purchase of total supply for resale
- (6.) Price fixing
- (7.) Pooling of patents
- (8.) Open price pools

e. *Legislation in the United States* has on the whole tended strongly to limit the powers of pools and combinations, in accordance with a policy of preserving free competition; but recent judicial interpretation of this legislation has made it less restrictive. It must be assumed that public opinion in the United States is strongly in favor of strong limitations to the powers of pools and

combinations. The principal legislation relating to pools and combinations has been⁵

(1.) Regulating transportation companies

The Interstate Commerce Commission of 1887.

The Elkins Act of 1903.

The Hepburn Amendment of 1906.

The Transportation Act of 1920. (This permits certain combinations of railroads under supervision of the Interstate Commerce Commission.)

(2.) Anti-Trust legislation

The Sherman Anti-Trust Law of 1890.

The Anti-Trust Amendments to the Wilson Tariff Act of 1894.

The Clayton Act of 1914. (Permits combinations for the conduct of export business.)

The War Finance Corporation Act of 1918. (Special legislation to expire six month after the close of the war.)

f. *Holding companies*, or corporations organized for the purpose of unified control of legally separate enterprises through purchase of creditor or ownership securities of these enterprises, and trusts, or business estates in the custody and under the management of a common trustee, should not be confused with cartels, pools and combinations. The cartel, pool or combination is a federation based on contractual agreement; the holding company is a corporate entity; the trust is a legal trustee.

C. The Problem

1. Regularization and Stabilization of World Industrial Conditions is Desired

a. This is presumably the desire which explains the current more intense interest in the institution of the cartel, a desire to control by industrial agreements the evolution of industry out of its present condition of disorganization, a desire to avoid the disastrous costs of re-establishment of world economic balances under the play of free competition. At bottom there is undoubtedly the belief that controlled rehabilitation will be socially less costly than uncontrolled rehabilitation.

b. The first question to arise is likely to be whether national policies can be unified to permit establishment of cartels possessing the monopolistic or quasi-monopolistic privileges of a stabilizing nature (division of markets, price agreements, etc.) which have heretofore generally characterized such institutions. This is a question for political rather than economic experts.

^aArchibald H. Stockder, "Business Ownership and Organization," pg. 280.

⁴Ibid, pg. 266.

⁵Ibid, pg. 439.

c. The second question logically to arise is likely to be whether a formula can be found for cartels (suggested perhaps by the Interstate Commerce Commission Act of 1887 and the consolidation and fair return features of the Transportation Act of 1920) which provides for elimination of the privileges of monopoly and quasi-monopoly, especially autocratic price-control, and which provides a substitute for these privileges which will secure stabilization for industry through reasonable profits and benefits for society through stability and progressive price reductions.

d. The third question logically to arise is whether scientific management is not that substitute; whether the international cartel, organized

in accordance with a formula satisfactory to public opinion in all countries, and administered and managed in accordance with the principles and techniques of scientific management, is not the very agency which will:

(1.) Effect economies in production and distribution which can be shared by members of a cartel through reasonably stabilized sustaining profits, and by industrial society through industrial stabilization and progressive price reductions:

(2.) Provide by its very technique the precise and detail information which will sustain the formula agreed upon; namely, as a measure of effectiveness of administration, economies effected, reasonableness of profits and reasonableness of price.

THE spring meeting, held under the joint auspices of the Taylor Society and the Personnel Research Federation, May 9 and 10 at Washington, D. C., was devoted to the subject of leadership. Following are the impressions carried away by one attendant:

1. Although the concept of leadership is sufficiently definite to permit discussion, we as yet know little about the real nature of leadership. Mr. Tead's excellent paper, printed in this issue, is an adequate summary of present information.

2. While promoted by and usually coincident with status—formal position and authority—leadership is essentially independent of status. It may be manifested by foreman as well as by president, by worker as well as by executive.

3. Such research as has been or is being made pertains primarily to "personnel understanding" as evidence of the presence or absence of leadership; only incidentally to the nature of leadership.

4. Research as to the nature of leadership should be made in terms of conduct—acts done by those to whom are attributed the capacities of leadership.

5. Explanation of leadership in terms of qualities or attributes is not sufficient, but when considered in terms of qualities, leadership manifests, with varying values in combination under different circumstances: imagination or vision—the capacity to see objectives; technical knowledge whether and how objectives may be achieved; suasion, or capacity to generate in a co-operating group the desire to achieve specific objectives.

6. Environment plays a large part in determining the nature of leadership—in determining the weights in combination of the various qualities or attributes characteristic of leadership. Both physical conditions and group habits and inhibitions are vital factors in environment which determine the nature of leadership.

The Nature and Uses of Creative Leadership¹

Considered from the Point of View of Modern Psychology and Pedagogy

By **ORDWAY TEAD**

Harper & Brothers and New York School of Social Work

THE problem of leadership is to the fore today because of the recognized need in industry, first, of animating those who direct and supervise with a co-operative rather than an autocratic attitude and technique and, second, because of the need of securing in those led a positive and creative motivation. Leadership is the note because of a new outlook on the way in which human power is generated, focused and sustained—an outlook which means an animating spirit on the part alike of leader and led different from that between "boss" and "underlings," and nearer to that of the captain and members of a football team.

All at once, in a rather widespread way, it is dawning on close students of American business administration that our industrial army has been an army of mercenaries—paid soldiers, working only for hire, rather than a volunteer army of citizens fighting for a fatherland.

We are here to discuss leadership, then, because we realize (1) that it is a hidden asset of unsuspected value, (2) that its discovery, development and application to industrial life might work new wonders on the side of positive morale, (3) that leadership properly conceived can supply a clue to the technique of bringing into being harmonious group action. And since harmonious group action is an outstanding need in industry, and since some kind of group action is typical, whatever is calculated to bring groups into new vitality, new power and new zeal can be of incalculable benefit.

Definition: The problem of definition presents some verbal difficulties, perhaps. Yet I doubt if any of us would seriously disagree about the identity of the thing in action. Leadership is ability to lead. Leading means that others follow.

¹Paper presented before a joint meeting of the Taylor Society and the Personnel Research Federation, Washington, May 9 and 10, 1927.

The fact of others following indicates action secured, presumably in some desired direction. Ability to lead is ability to get people to act (mentally or physically) toward an objective. *Leadership is the name for that combination of qualities by the possession of which one is able to get something done by others chiefly because through his influence they become willing to do it.* It is ability to secure willing action on behalf of an established purpose. The elements, first, of influencing people so that their own desires harmonize with those of the leader and, second, of a definite objective, seem both to be essential. I am going to characterize this as *creative leadership* to differentiate it from the kind of influencing which any executive command may lead to. The distinguishing element, I submit, is the creation or direction of positive desire in the led. Something over and above mere consent is implied. It is an actual taking unto oneself as one's very own the purpose of the leader. It is further implied that the creative leader and his constituency may together evolve new reaches of purpose, the realizing of which will most effectively bring to fulfillment the desires of all concerned.

A qualification is, perhaps, wise here. There has for a long time been leadership in industry under conditions of greater or less compulsion due to economic pressure. Leadership thus exercised is now being found to have great limitations as those led have become less and less subject to severe forms of pressure and as the desire for a sense of freedom has grown in the community. Again, there has been and is an increasing amount of leadership securing a sort of resigned following, a passive consent. This probably represents an advance over the attitude found in the compulsory cases and its great extension in industry in the immediate future will, in fact, be an advance. This might be called a leadership of the half-

hearted. Yet, I believe we are justified, as we try to get to the bottom of our subject, in trying to see the finest manifestation which leadership can and might take—a leadership of the whole-hearted and active-minded; and it is this best type which I call creative leadership.

Although the colloquial uses of the word leadership are many—such as political, religious, military and social leadership—for our purposes we are thinking of people who are responsible for directing industrial activities and for the effectiveness of the labor of those spoken of as their subordinates. We are concerned with the contacts of company presidents, superintendents, factory managers, department heads, foremen and all others who have directive responsibilities.

Who Are Leaders?

Does this definition then imply that every executive is a leader? Are there not some leaders who are not acknowledged directing heads in their group or organization? And are not a great many people leaders, at least occasionally and to a degree?

Surely every executive is a leader of sorts, and the purpose of our deliberation here today is to begin to find out if it is not possible to make a good and creative leader out of every executive.

Surely, too, there are many unacknowledged leaders who have to work more or less through the titular leaders. That there is a separate technique by which this indirect leadership is exercised I suggest as worth future study.

Also, defining leadership thus, opportunities for exercising it do come to almost everyone on occasion. It is one of the merits of this creative emphasis in the leadership concept that the status of the leader is taken out of the realm of the miraculous and the unusual. Rather the emphasis is upon trying to extend as widely as possible that combination of normal human qualities which makes leaders effective.

The Problem Outlined

Our definition seems now to suggest a variety of special questions on which there will be more detailed treatment in subsequent addresses. This first paper of the conference can perhaps be of most service if I open the subject to scientific and inductive attack by offering a number of ten-

tative assertions—some of them conjectural—which may stimulate others to new hypotheses and testings which will increase the total of our knowledge.

It is important to make clear, first, why it is that leadership may be discussed productively today: to show why the subject is well beyond the generalizing and sermonizing stage.

We are next interested to know where human desires come from, how those desires affect purposes, and how those purposes can be directed. We want to know if any generalizations can be made about the relative possibilities of influencing people with different kinds of purposes; about the qualifications for leadership; whether these qualifications are all innate or are partly innate and partly acquired; whether the acquired aspects can be developed and strengthened by training and if so by what kind of training and whether potential leadership can be identified in advance. Also, there are a number of special aspects of the leader's work, a discussion of which should help to enrich our conception of leadership and our awareness of the technical details required for its practical fulfillment.

Finally, there are certain dangers in leadership. There is such a thing as too much leadership both for the leader and the led.

I shall now briefly touch upon these several points.

Why Is Leadership Important?

The fundamental reason why leadership can now be talked about with some assurance that it will yield truly new and productive results in industrial conduct is because *a new conception of human nature is becoming articulate* in modern, eclectic psychology. I do not say that individual managers have become interested in leadership because they know that there is a new psychology. But unquestionably the tendency to be consciously concerned about the subject has been stimulated by the fertilizing of students' thinking about management in the light of the current conception of human nature.

The quickest way to make vivid this new understanding of people is to contrast it with notions tacitly held in the past. The older conceptions of personality were essentially passive. One conceived of pouring ideas and feelings into

people like wine into a goat skin. One conceived of adults deciding what purposes should be followed in life and making these effective in the lives of the young, much as concrete is poured into wooden forms. The educational process has for generations been conceived as one of imparting isolated sets of facts. People's sense of human nature was not merely negative; often it was thought of as at least partly depraved or fallen. The economic man, hedonism, Calvinism—each connoted and stressed a fractional, fragmentary view of human nature, falsified by a dwelling on one element.

Today we conceive of the growth of the individual life in terms of an increasing self-awareness, in terms of the spontaneous generation from within of a variety of native forces which thrust out in all sorts of directions and give drive and motive to life. The fact of growth from within of sensory, emotional and volitional powers is dwelt on. A perpetual fluidity of experience is insisted upon. Recognition of all sides of human nature as worthy is at last taken for granted. The impulsive and the affective parts of our nature are seen to supply us with ends for immediate realization. We see people building up through the years a great variety of habit patterns which in turn come to have their own directive and impulsive power. The view of the dynamic influence of habits and the stimulating consequence of conflicts among habits which John Dewey presents in "Human Nature and Conduct" has been a most illuminating contribution. We think of the mind and of reasoning as helping to direct the flow of impulsive activity into channels where satisfactions may be found as well as helping to pass occasional judgment on those satisfactions. We see life as evolving its own purposes, emerging constantly into new reaches of awareness, as dynamic, seeking an integration of conflicts and coping with obstructions as experience shows the need.

The emphasis upon what is technically spoken of as the "total situation" means that we think of this vital and irrepressible human nature as not only acting but as constantly acted upon by the total environment in which behavior is set. This constant conditioning of behavior by the infinite variety of contacts with other people, institutions and natural forces, is an indispensable part of our notion of the way in which human nature

acts and is reacted upon, of the circular or rather spiral quality of stimulus and response in life.

A vital part of this whole newer view is that experience is in a sense conceived as its own excuse and reason for being. I do not mean here, however, experience viewed just quantitatively—not just hectic volumes of incessant activity. I mean that experience is held the significant fact when qualitatively viewed—seen in relation to the lasting satisfactions, sense of growth, new power and insight which it yields to the individual.

Present activity gains its meaning not because some ultimate goals are being striven for, but when and insofar as present desire is being satisfied. How far present desire ties up with more long time goals is in part, at least, a question of the intelligence and judgment of the individual. Being at last realistic, we find that what affects human behavior is not ideals in the starry sense in which the word has favorably been used, but rather the fact of what one wants to do next. Those influences which decide us upon what we will do next *are* our ideals. This means that great importance attaches to the way in which purposes work upon behavior to help shape it from moment to moment. On this whole question of the shaping and reshaping of purposes we are aware as never before of the big part environment plays and, more important, can be made to play in making the new purpose of the wise leader seem the logical, inevitable and desirable line to follow.

I appreciate how wholly inadequate the above characterization is to convey forcefully enough to carry through a two-days' discussion this idea of the dynamic, creative, desiring, changing thing which is human nature. But I can assure you that the practical upshot of this vitalistic conception has revolutionized the education of young children in the last ten years. Its influence is gradually spreading into the secondary schools and colleges. And the implications of it can, I am confident, be just as successfully applied in the industrial world once there are a sufficient number of leaders with the insight and the technical background to make the right application.

Where Do Desires Come From; How Do They Influence Purposes?

From the point of view of creative leadership, the distinguishing element is that people are in-

fluenced because their desires and their purposes are brought, at least temporarily, into approximate harmony with those of the leader. What then is the source of desire, what is its relation to purpose; and how are changes in the character or direction of purposes brought about?

It is only possible here to state without elaboration the fact that desires are of two general sorts; they are native, or they are acquired. The things that people want to do of an acquired sort they apprehend chiefly by imitation, by habit, by contagion of someone else's enthusiasm, by the pressure of social custom, and occasionally by thinking out a plan. From the leader's point of view, it is important for him to understand the extent to which the desires he is evoking are native, or are consciously or unconsciously acquired by those whom he leads. In general it would be true, I believe we will find, that the nearer the desires to be followed through are native, the more likely will it be that people will hold to them firmly and sacrifice to realize them.

Purposes are the immediate means whereby we fulfill the desire. They can be changed by influences which are in part emotional, in part intellectual, in part environmental. The leader who tries to redirect them by using one alone of these three forces will be in the weakest possible position. That leader will be strongest in his effectiveness who realizes how strong a pressure environmental influences can exert in bringing about changes in the things that people want to do. Indeed, one of the most effective ways to get people to change their purposes is to create about them situations or to get them into situations where they feel some sense of bafflement and dissatisfaction, and where the logical conclusion which they must draw as to the way out of the difficulty lies in the direction which the leader sees and shows as the one it is best to follow.

An example of what I mean is afforded by the experience of the manager of a middle-western factory who found a serious condition of limitation of output in one department. He finally went into the department, gathered the men about him and said, in effect, that if they would give up the practice of restricting output the management on its side would guarantee that there would be no rate cutting and would do everything possible to improve the manufacturing conditions so that high

production could be obtained. He asked the group if they could not be willing to try this policy for a month and then reconsider the situation with him. They did it, and at the end of the month the experience of everyone with greatly increased earnings had been so satisfactory that there was no question of returning to the former policy.

Here was a leader bringing his group into a situation in and through the experience of which their purpose was influenced in ways that yielded a different line of conduct. Their experience of high earnings and security of position quickly showed them that these were attained under the new conditions more surely than under the old. More than any preaching, moralizing, or coaxing, the way of their instruction was the way of self-disclosing activity. The impact of the total situation revealed a way of attaining a purpose more satisfying than the old way. This leader realized in a common sense way how it is that purposes may be broadened and activities in their behalf be modified.

Many similar examples could be thought of by us all. I give another to the same effect because the technique for exercising leadership in just this kind of way is at the very heart of the problem of wise methods. I watched recently the operation of an employee representation plan in a New England textile plant. The traditions there were the usual textile traditions of autocratic management and the autonomy of the individual old-school foremen. The second generation of manager-owners decided to try to install an advisory shop committee which should be a channel of communication and of adjustment of all difficulties. I was present at a foremen's meeting held two years after the plan had been initiated. The personnel manager was in the chair, and he was bringing to a head a discussion of the foremen's estimate of the plan's success. I had known the opposition encountered among the foremen when the plan was proposed, and it was extraordinarily interesting to see them voluntarily testify to their own new sense of the value of the committee in helping them to get on better with their men. No amount of lecturing at these foremen could have done what was done by a wise management's gently but firmly inducing them to give the new idea a trial, and thus change their purpose of obstruction to one of indorsement and use.

Does the Character of the Leader's Purposes Make a Difference in His Effectiveness?

It is next worth while to consider whether the character and quality of the leader's objectives make any difference in his success. From the creative point of view it seems to me that the answer must be that a great deal is determined by the character of the objects sought by the leader. I am prepared to offer for further testing the tentative principle that *those purposes and objects will find most ready reception at the hands of those led which can most readily be seen by them to square with their own desires or with desires which they can quite readily and naturally take up as their own.*

I believe that we will find in relation to corporate purposes in industry, for example, that leadership to be permanently effective must have objectives which the workers can, without too much difficulty, come to see as those which they themselves want to achieve. Creative leadership seems to me much more possible, much more likely of success, in plants like Dennison's, the Columbia Conserve Company and Leeds and Northrup—to name only a few that might be mentioned—than it will be in corporations where the old style military and feudal organization and spirit still prevail. For companies like the ones above named are willing to conceive of their corporate objectives in terms which include those which the workers can readily embrace. And more than that, such companies pass the supreme test of trying to provide arrangements of one sort or another which definitely, contractually and structurally assure fulfillment of their workers' desire for a sense of partnership, security, participation in knowledge and in earnings. This test is not one, we should recognize, which more than a small minority of companies can now meet. The inability of the others to meet it will, while it continues, constitute, I believe, an insuperable barrier against the exercise of the best creative leadership.

In other words, the view for which I seek serious consideration is that *creative leadership can best manifest itself only under those corporate conditions where in a consistent way and in terms of practical working devices, and not merely in verbalisms, the corporation is demonstrating clearly to its workers that it desires to consider them as partners in a group enterprise and not merely as agents for the piling up of excessive profits for absentee owners.*

Inevitably, some will say that my discussion at this point is not scientific and psychological but personal and opinionated. I want to meet this certain objection by saying that everyone of us has only to look into his own experience and employ legitimately a little introspective psychology to check my point. Let anyone ask himself how long he is willing to be led into following purposes (1) which he did not have a hand in making, (2) which he is more or less enforced to accept if he wants to get the wherewithal of life, (3) in the results from the realizing of which he has no stake, (4) the real meaning of which he does not understand, and (5) the process of fulfilling which he finds a bore. It is in much this situation that typical manual and clerical workers in the general run of companies find themselves today, if only they and we had the psychological acumen to see their negative and unliberating motivation. No; it is not unscientific to call attention to the kind of purposes that many corporations today espouse. It is the essence of the problem. For leadership in its best sense can never appear in industry until the kind of objectives to which it summons devotion are those which are capable of being embraced by people as a part of their search for self-fulfillment.

The slogan for the successful leader is: Get right with your purposes! This means he must have wit enough to know, when he sees them, purposes which are likely to gain popular favor, which catch on because they catch in as integral to the yearnings of those led.

The Qualifications For Leadership

Sooner or later some agreement will be reached as to the outstanding elements in personality required to make leadership a fact. But now we are at a stage where only the most tentative and introductory statements can be made. The room for research is enormous.

There is probably a good deal of difference in the qualities required for different types of leadership. A leader of the face-to-face type will perhaps require certain characteristics that are unnecessary in the intellectual leader who supplies ideas for a new movement. The qualifications differ also with the levels of intelligence and culture of the group to be led. Differences are also to be noted depending upon the character of the group, on the

race, the generation and the place in which the leadership is exercised. For our immediate purposes we are concerned primarily with the qualifications for face-to-face leadership of people in corporate organizations.

Certainly, among the first in importance is the possession of *physical* and *nervous energy* by the leader. There is a subtle sense in which strength goes out from the leader, in which power is imparted by the contagion of his own physical and nervous drive. This quality as much as any other seems a factor always present.

Related to it is that combination of physical and psychical qualities spoken of as *enthusiasm*. Here again is a factor seemingly a constant in leaders. Of course, every enthusiast is not a leader, but every leader has a generous endowment of enthusiasm.

Adequate command—even though not perfect command—of the *technical knowledge* or skill as to the project in question is also important.

Intelligence is apparently essential in the psychologist's special use of that word to mean mental alertness. We will probably eventually be able to prove that there is a positive correlation between this quality and effectiveness in leadership.

Imagination is required—namely, that ability to work with the data of past experience in newly conceived combinations. A lively curiosity and sense of excitement in new ideas usually contributes to the finest flowering of imagination.

Knowledge of human nature—whether it be what is called intuitive or however it be acquired—is important. This ability to understand the probable reactions of people and to judge of individual differences is an indispensable quality.

In addition, I think that we are going to find that there is required that something which is meant by the phrase "*having faith in people*." An essential aspect of the conception of creative leadership is a belief in the spontaneous and self-generating powers of individuals in groups if they are given a chance to exercise them. The fact that people respond to confidence imposed in them is a familiar truth which the leader must apprehend.

Other characteristics which can be identified are courage, persistence, initiative, tact, patience, self-confidence, sense of humor and purposiveness. This last is of great importance. The leader is distinguished as one who believes in his purposes

hard enough to work unremittingly for them. To be too continually reflective about the wisdom of the purposes in hand is to be a philosopher rather than a leader.

Over and under and through all these characteristics, I cannot but feel that the thing that distinguishes leaders is the special quality of *their attitude toward those whom they lead*. They are interested in people; they are sympathetic with people; they like people. I suggest tentatively that to be successful they must have positive affection for people, especially for those whom they are leading. I believe I am not unscientific when I say that the creative leader in the industrial environment is a warm-hearted individual—warm-hearted while still remaining, of course, cool-headed.

Where, then, comes in the attribute spoken of as "personality"? This word has so many connotations that it is hard to appropriate it for scientific use. In connection with leadership it probably means personal charm, winsomeness, a certain magnetic attractiveness. I confess to being baffled by this attribute which if a real attribute and if needed at all is chiefly necessary in the face-to-face kind of leadership. We need more psychological analysis before we can develop this point.

Are These Qualifications Innate?

Even this brief outline of leadership characteristics is enough to guide our thinking as we ask whether these qualifications are inborn or may be acquired. If you agree at all with my statement of them you will surely agree that many of them may indeed be acquired. Mental alertness can seemingly not be acquired, but most of the others can probably be more or less learned or developed as separate characteristics. The only serious question is as to whether the subtle alchemy which will consciously mix them together to make a successful leader can be learned. I confess to grave doubts. The kind of magnetic personalities usually spoken of as born leaders are and always will be strictly limited. There will never be enough to go around. That is one reason why the practical problem seems to me to lie elsewhere. Every corporation continues to have need of a required quota of executives. *The practical aim of wise head executives will be to make their executives just as good leaders as possible.* This means determining

which leadership qualities can be trained for and training executives in those. On the physical side alone, for example, the change that can be brought in a man's attitude from that which prevails if he is dyspeptic to that which will more naturally arise if his digestion is improved and his liver made to function normally is an indication in one field of corrective activity where analysis of the situation followed by training can help.

It is interesting in this connection to see the comment that F. W. Taylor made on this point in the introduction to one of his volumes: "In the future," he said, "it will be appreciated that our leaders must be trained right as well as born right, and that no great man can (with the old system of personal management) hope to compete with a number of ordinary men who have been properly organized so as efficiently to co-operate."

This recognition of the need for many leaders in many fields rather than for heroes as leaders is sound and in line with all we know about the distribution of human capacity and the needs of organizations. The phrase, pluralistic leadership, has aptly been applied to this modern need. When the half-gods go, the reign can commence of ordinary men equipped to lead by technical proficiency, human insight and objectives of real worth.

Special Phases of the Leader's Work

A number of special aspects of the leader's work may now be briefly discussed to help to fill out the meaning of the notion of creative leadership.

The leader should combine in himself, among other things, the qualities of (1) a planner, (2) a technician, (3) a commander, (4) a co-ordinator, (5) a trainer, (6) an energizer. Ideally it would seem that all these should be present, but whether or not all are required equally of the leader in every situation is doubtful. These represent not the least but the most of the aspects of the good leader's attributes.

The Leader as Planner

There are two reasons why I want to call attention to the planning aspects of the leader's work; first, because of the place of planning in scientific management technique, and, second, because of the peculiar kind of thinking which plan-

ning requires—a type of thinking for which I believe special training can be given. The point has sometimes been raised that under the conditions of systematization which scientific management entails, there is no room for leadership, that everything is cut and dried, and direction and supervision become increasingly impersonal. The profounder view is that the kind of planning which scientific managing entails is dynamic and not static, and each new change in the broad economic scene, as well as in technology and demand, requires a readjustment of plans. Also, it should be realized that planning for effective group co-operation is not an undertaking which can ever be stopped at any moment with the assurance that co-operation will go on of its own momentum. Planning for co-operation is essentially an evolving and continuing task. While it is true that the conduct of details should be more automatically assured under scientific management, the perpetuation of that spirit in which all the details work together in a continuing harmony requires planning of a high and special order. This is the phase of planning in which the true leader will become conspicuous.

My other point is that planning involves a special kind of thinking which is primarily inductive. And one of the lessons of modern applied psychology is that the process of inductive thinking can be more effectively carried on if it is consciously carried on with reference to a knowledge of the steps in the process. The cultivation in people's mental habits of what is known as the scientific spirit and method can be fostered. Successful thinking of a planning sort involves following well defined steps, and the more clearly the thinker is aware of the way these are taken, the more certain is he to arrive at sound conclusions. The steps are: (1) recognition of a problem, (2) assembly of the facts, (3) classification of the facts, (4) formulation of a tentative hypothesis, (5) testing of the hypothesis, (6) applying the hypothesis tentatively as long as it seems to work.

Professor McClure's book "How to Think in Business" is a good example of the psychologically sound kind of book to use to cultivate proficiency in this important direction. It would profitably constitute the basic text for a short term executive course.

The Leader as a Technician

The leader has special problems as a technician. Among these is his relation to those more expert than himself in branches of the activity for which he is co-ordinating agent. A number of recent writers have fruitfully been pointing out that the relation between the expert and the leader is requiring new definition. The old formulas of this relationship are seen no longer to apply with complete accuracy. The relation of a cost accountant to a foreman, the relation of a chemical engineer to a superintendent of a chemical works, the relation of a personnel vice-president to a manufacturing vice-president, the relation of a purchasing agent in an organization where purchasing is a key problem to the financial head—none of these relationships is capable of being stated adequately any longer in terms of clear-cut divisions of authority. Each executive definitely assumes some responsibility. While it is no doubt true that the operating officials must still assume responsibility for decisions, his relationship to all staff advisors is one which implies bringing out new truth, new combinations of practical ideas. The emphasis is on arriving at a more informed working basis by crossing the line and staff points of view. What is wanted is not a compromise between the two, but a new creative synthesis better than either. For the development of this kind of productive inter-relationship, the emphasis upon the leadership concept among the affected executives will surely lead to the best results. The true leader will recognize that his effectiveness is in proportion to his ability to work with those whom he recognizes as experts and leaders in other fields.

The Leader as a Commander

It would be unrealistic to ignore that aspect of the leader's work in which he acts as a commander or order-giver. While it is no doubt true that emphasis on order-giving can be increasingly subordinated, while it is true that each function can increasingly be made to carry with it its own responsibilities which the functionary fulfills without having to be ordered so to do, it nevertheless is true—and it seems to me it will always be true in larger groups—that immediate and clear-cut decisions will at times have to be made by leaders; and these decisions will practically have the effect

of commands. It may be that one of the principles which should be established here is that the aspect of command-giving under leadership should be minimized. But in so far as command-giving must obtain, it is important that suggestions be made and be clearly conveyed to leaders as to the best methods of giving orders. There is much already known on the whole subject of the manners and methods of order-giving and of the personal demeanor of the leader toward the led which industry ought to use. Books like those of Colonel Lincoln C. Andrews, in which he draws on his military experiences, can helpfully be utilized in this connection. The syllabus prepared by the Navy Department on "Personnel Management" (called a Navy Education Study Course) is also a splendid example of the kind of material which should be made available in relation to this problem in industry. Schell's "Technique of Executive Control" and Craig and Charter's "Personal Leadership in Industry" are also splendid aids here.

The Leader as a Co-ordinator

Some writers have stressed particularly the work of the leader as co-ordinator. They feel that the bringing into working harmony of the activities of numbers of people working upon various functions is one of the unique contributions of leadership. I agree with this emphasis and see two aspects of the problem which should be recognized as equally vital. These are the aspect of providing the mechanisms and organizations under which co-ordination can naturally and smoothly take effect; and there is the other aspect of assuring that people are increasingly desirous of subordinating their personal whims to their larger desire for a smooth working together of the group activities in which they are participating. The technique of co-ordination on the side of structure and methods is as yet in its infancy. The principle which has for some time seemed to me to be sound in this connection is as yet far from being universally accepted in industry. That principle is that co-ordination effectively takes place where every group specially interested in carrying on a function or activity is represented in making decisions which affect the success of that activity. The structures which will give effect to this requirement are today rarely met in corporate organizations, and their invention and installation is one

of the special challenges to leadership which should be met.

On the more personal side, it will be agreed by anyone who has been familiar with the internal politics in any organization bigger than a few dozen people that the leader's job as personal co-ordinator is no bed of roses. Every consultant who has come close to executive groups is always impressed with the need for a "father confessor" to iron out the personal maladjustments and frictions.

The Leader as a Trainer

On every hand today managers are giving at least lip service to the thought that the best executive is the best teacher, and that a major function of the executive's work is teaching. All this is doubly true of the creative leader. He can get nowhere unless he is mindful in the most concrete way of what the teacher does and how he does it and is applying this knowledge in his own hour by hour contacts.

The leader will make the best trainer if two or three broad facts are in the background of his mind. He should realize that formal schooling and intellectual discipline stopped between the ages of ten and fourteen for most of those associated with him, that a grammar school education is as much education as was obtained by at least eighty-five per cent of his group. Also, he should realize and not be bowled over by the facts about the distribution of intelligence or mental alertness in the community. Apparently the figures supplied out of the army experience about the distribution of mental alertness reflect in a rough sort of way the condition in the community as a whole. Some exceedingly sombre conclusions have been drawn by popular, pseudo-scientific writers out of these facts. Writers like Lothrop Stoddard, Goddard, MacDougall and others have prematurely become apprehensive about the possibilities of further education and even of self-government for people whose intelligence quotients fall so largely in the lower ranks. They tend to ignore the fact that mental alertness tests attempt to test only mental alertness and that other qualities are quite as essential in life and in industry. The value of actual knowledge, of persistence, of purposiveness, of the cultural setting in which one's experience occurs should not be lost sight of. And the discerning leader will realize that the possession

of different degrees of so-called intelligence on the part of his group argues little about the possibility of having them become increasingly effective, loyal and happy members of it. His problem is rather to fit responsibilities to individual capacities while looking always for the brighter members and doing everything possible by drill, information, example and enthusiasm to stir people to exceed their own previous performances. Differences of intelligence do not argue against the need for leadership—they argue only for leaders who capitalize on the facts and, as Lord Morley said, realize that he who would successfully lead mankind must not expect too much of it!

Another fact which the leader as trainer encounters is the fear and suspicion of further education among most adults whose education has stopped prematurely. It is felt by many to be a sign of weakness and a confession of incompetence to carry on with an adult educational program. The leader has this feeling to work against. And he must realize that any contemplated educational program must be along radically new lines.

Using a Training Technique

It goes without saying that the leader will use consciously all the principles of learning. This implies a number of things. It implies a recognition of the several different methods of carrying on instruction, of the essential nature of the learning process, of the place of the teacher in learning.

He must know the relative value of the following methods of instruction: (1) lectures, (2) demonstrations, (3) projects to do, (4) cases to analyze and solve, (5) discussion under leadership.

He must realize that learning is always a combination of mental and motor activity, different in essence from either telling, showing, or drilling, although perhaps involving at one time or another all of these. He must realize the important element of truth which there is in such statements as "the one who is doing the learning must do the learning," "we do not think our way into our living, we live our way into our thinking," "no one ever told anyone anything," and "we do not know a thing until we have done it."

The leader will realize that the old dictum about experience being a dear teacher applies not merely to fools but to most of us in most of the learning that we do. I do not say that this kind of human

trial and error is the only method by which humans learn, but it is from a practical standpoint still the most usual. This means that we learn more and faster when we are forced by circumstances to readjust ourselves to new conditions than we do from any other one cause. The surrounding conditions must support and help to foster the new objective and thus contribute to its realizing if a new habit is to be built. And the wise leader is the one who uses the whole environment to be sure that it does re-enforce the new aim. Perhaps an example will make my meaning clearer on this important point.

Take the case of a plant which wanted to take the discharge power out of the foremen's hands. The personnel man sold the idea to everyone but the foremen, of whom a substantial minority had grave misgivings, but the policy was put into effect over their objections. After a year's experience with the personnel department handling this and taking all these personnel adjustment problems out of the hands of the already overworked foremen, their opinion was again sought as to the success of the policy and the advisability of returning to the former method. All the foremen were found to be converted; and the change had come not through persuading or even, it seems to me, through overmuch autocratic assertion of power. It had come through creating a total experience which in its natural setting showed the new way to be more advantageous for the foremen. The surrounding conditions were allowed to mold and reshape their ideas as to how to get the departmental morale they wanted, and they found they liked the new way better. Good leadership had put the foremen through a successful learning process.

It may be commonplace to you and to me to say that learning takes place because of recognition of a problem to be solved, or because of an urgently felt desire which is not satisfied. But these are the two great prime movers to new learning, and until they are called into use nothing happens. If we could get industrial leaders to recognize and apply this principle about learning it would surely yield a thousandfold. Set people in a problem situation; guide the process by which they find the way out; stir people by the prompting of a new and strong desire; then help to show how they can satisfy it—this is good leadership strategy.

The relation of the teacher or leader to the learning process is thus important to make explicit. He can help to supply facts included among which are the experiences of others; he can help to interpret facts; he can help to create and place people in problem situations where new and educational experiences will take place. He can inspire them to thought and to activity by his own interest and enthusiasm in the project, but the learning itself must be done by each one afresh. It is learning and not "knowing about" *only when a new skill has been really acquired*, a skill capable of being called into use under the requirements of the special need. So much education today is conceived of as knowing about things, as verbal and informational in character, that it is hard to get the really revolutionary idea across that *true learning means the possession and ability to use at the right time skill of a particular sort*. I use the word "skill" here not in the restricted sense of a routine muscular accomplishment like ability to run a loom or a typewriter. I mean ability to confront successfully any typical executive problem like running a conference, getting a new policy put over, or starting a new program in some special field. It is easy to know in the abstract the methods that will make a shop committee vital; it is hard to be able to utilize shop committees to assure greater unity of corporate purpose and effort. But only the executive possessed of the latter ability can be said to be really educated about shop committees.

Of course, the leader will understand that all education starts where those to be led now are in point of their mental habits, outlook, interests and desires. It is fundamental in pedagogy that all learning starts with the known and the understood, and relates additional experience gradually to the existing body of understanding and ability.

It is important to remember also that there is a definite pace in learning and that the pace in adult learning is somewhat slower than that in children. The need for patience here will be better realized if the leader knows the shape of what is usually spoken of as the "learning curve" with its plateaus where discouragement and lack of progress inevitably occur.

One of the useful ways to overcome this universally experienced sense of discouragement has been found to be the providing of the learner with what are called "milestones of progress." It has

furthermore been definitely established that the learner who has confidence that he is making progress and is going to make progress, and who has his own confidence reinforced by that of the leader, goes ahead faster than does the student who is alone in his plodding efforts.

This characterization of learning and of the place of the teacher or leader may seem unduly unintellectual. But emphasis on the motor and experiential aspect of learning is deliberate. We need the correction of an over-stressing of the motor aspects of learning. I do not mean here learning in the field of technical job instruction, but in the field of accepting new corporate policies or methods.

Yet I realize fully that there is learning which can take place without motor experience of the more objective sort. Few have to be burned more than once in order to keep away from fire; no one has to indulge in all the depravities and perversions of life to realize that they are depraved or perverse. It is pivotal to a correct balance of view about the educational process to realize the function of the mind, of reasoning, in education. Thinking takes place to enable the learner by deliberating upon a wide store of facts and experiences to draw conclusions which will save him the pain and the labor of making every human experiment afresh for himself.

The good leader will realize the great importance of cultivating sound thinking among those led, because he will understand that thinking should be conceived as instrumental for the purpose of directing and guiding wisely the flow of impulse and desire. Without making the serious mistake of assuming that people are always rational animals, the leader will nevertheless try to capitalize on the yearnings of people to think fruitfully and creatively to the end that some order and meaning will emerge out of their own experiences, conflicts and thwartings. The wise leader will do everything he can to cultivate conditions under which the reason and imagination will be stimulated into use, and on this problem of stimulating thought he will find that the psychologists have some helpful advice to offer. The kind of suggestions offered in Mr. Graham Wallas's chapters on thought in his "Great Society" and in his book "The Art of Thought," and the chapters on this subject in Ewer's "Applied Psychology" suggest the help I am thinking of.

The Training of Leaders

The conclusion that one reaches about training in the art of leadership itself is fairly clear. One learns to lead by leading; experience in the activity itself is essential. Every workable plan which can be devised for systems of understudy should be encouraged with this motive clearly in view. There is room for a great deal of fruitful experiment with young executives here, if this training emphasis is kept in mind. They must, in respect to their leadership capacity, be thrown occasionally into the water and be made to swim. Otherwise, they may become good desk executives, but never the best creative leaders.

Training Leaders to Utilize Conflicts

A special phase of the leader's role as teacher deserves explicit emphasis because it recognizes in a new way an old problem which has constantly to be met. I refer to the importance of understanding and making use of a technique for getting rid of conflict and utilizing conflicts both within groups and between groups. I have only time to mention the fact that we are recognizing today afresh the beneficent possibilities which conflicts may be made to yield. Miss Follett's whole emphasis on the creative and integrative aspects of conflict is no doubt known to most of you, but it has still to be popularized.

In outline, the knowledge which we have today about methods of making constructive use of conflict is as follows:

The first task is to get together for conference a group of those who represent the distinct interests and different points of view concerned with the resolving of any conflict. It is then the leader's task to draw out an adequate statement of every point of view and to get into the record *all* the acknowledged facts. The next step is to get a clear statement of what each faction desires; and this must be, not in general terms, but *just as explicitly as possible*. The breaking down of desires or aims into their really concrete manifestations is a most important point. When this stage has been reached, the point has arrived when the most thoughtful heads should get together to try to propose some new formula, new method, new synthesis, which will either give recognition to the existing purposes of all, or will represent such a moderate and desirable depar-

ture from the original demands of all that it appears to them to be a better way out than either submission or compromise. The final step is to make this newly integrated objective attractive to all and then effective for all.

This summary outline of this vital process is ridiculously inadequate but its importance in the technique of group leadership is tremendous, and is as yet hardly recognized. The unique work of a group called The Inquiry in New York, in trying to give wider public understanding to the creative uses of conflict, should be mentioned here because a number of its study volumes can usefully be employed by industrial leaders as textbooks in this connection.²

The Leader as an Energizer

There is still the aspect of the leader's work as energizer to consider. I have used this word intentionally rather than the word inspirer because it seems to me to be the broader. Certainly, the face-to-face leader by the contagion and energetic quality of his personality supplies something which many people find indispensable for any leader who is to hold them for long. I am sure that realism here requires understanding of two facts: that almost everyone responds, at least occasionally, to the enthusiasm of a leader and, equally important, that most people require a good deal of personalizing of the objectives which they are to strive for. If you will remember how much the great religions of the world always have depended upon the attracting power of a strong person, and have tried to center in that person the aims which they wanted others to embody, you will realize what a strong and valid psychological motive has been employed.

I know that we tend to be a little cynical today about the methods of the industrial leader who can get the "boys" to throw up their hats and cheer lustily when he comes into the works. But I seriously propose that the behavior of the "boys" is far less the thing to be cynical about under existing conditions than the motives of the leader. *Given the right kind of purposes* on the part of the leader, and I submit for your consideration that if all the employees want to have his picture framed in their front parlors this is a legitimate tie-up of motives.

²"Creative Discussion, a Co-operative Technique for Conflict," published by The Inquiry, 129 East 52nd Street, New York.

Whether we like it or not, it seems to me that we have to realize that it *may* be a principle about leadership that *the more nearly the objectives sought can be embodied and visualized in an individual, the more effectively will the ends be realized.*

Dangers in Leadership

No program for the development of leadership can be successfully executed which does not realize that certain dangers are likely to arise, which would be hurtful alike to the leader and the led. What has been called the will to power describes a real fact about human nature. We are all familiar with the situation where a leader has found that power comes readily to him, and he thereafter takes short cuts of one sort or another to maintain his prestige. He then tends to become much less sensitive to criticism and suggestion. He may get too far ahead of the procession. He may lose his sense for the development of a co-operative technique and be impatient if his way is not followed. He is in serious danger of getting surrounded with "yes-men." He may delight in the personal adulation that comes when the personalizing and hero-worshiping influences get unduly to work. Unquestionably there is the gravest danger of the leader finding himself more and more removed from direct contact with the flow of sentiment among those led. He may become, in short, satisfied with methods of leading which are psychologically unproductive—are autocratic and not creative.

Another aspect of this same truth is that the leader may come to think that his own aims and objectives are worthwhile *in themselves* without reference to the opinions and desires of those led. Nothing, in the long run, is so fatal to successful creative leadership as when one's own ends are set up as those for the realizing of which other people's wills must be bent or broken. Creative leadership means nothing if the leader does not realize that the fulfillment of life by each individual in his own way is an end which is his peculiar prerogative. The leader, it must repeatedly be emphasized, is not a beguiler, a bully, a seducer, or a hypnotist in respect to the purposes of those whom he leads. Only as he is a teacher and inspirer and one freely envisaging broader and broader aims can his appeal remain effective.

The people who are led may in turn become the victims of a policy which does not sufficiently

employ an educational motive. They are peculiarly in danger if at any time the leader develops pathological tendencies, as leaders have all too frequently been known to do under the strain of responsibility. If the leader has a physical infirmity or handicap, he may try to compensate for this by unduly aggressive conduct. If he finds some definite limitation in his mental or emotional equipment, he may try to compensate for this in some harmful way. Numberless examples of both of these phenomena could be cited. Those led are peculiarly in danger where the leader does not for any reason keep up with the times, keep up with the facts of the technology of the enterprise, or facts regarding the current temper of the members of the enterprise.

I mention these dangers not because I have ready at hand prescriptions for their avoidance, but explicit statement of them is the first step toward being on guard against them.

Summary

I have tried in this presentation to do the following: To explain why it is that the subject of leadership can profit by new thinking today. The point of emphasis is upon the new conception of human nature and upon the ways of helping its unfolding which modern psychology and pedagogy are suggesting. I have defined leadership in terms of influencing others in such ways that a true harmony of desires and objectives is created, and in terms of purposes being served which are recognized as valid for all concerned. I have then tried to give substance to our conception of creative leadership by discussing several important aspects of the leader's task and several dangers which he confronts in accomplishing it.

In conclusion, I want to remind you of the wider stage on which our industrial drama is being played. Industrial leadership must come to

be creative, it would seem, because our common life is set in a cultural environment where what are called democratic forces are at work. These democratic forces mean, as they are reflected in human behavior, that people with all their varying desires and objectives are insisting upon selecting their own ends as they will. They want their goals and satisfactions to be self-chosen and the realizing of them to be self-achieved.

Yet such democratic developments do not, or should not, mean leaderless, uninspired, or unguided shifts of popular desire and aim. On the contrary, democratic institutions more uniquely than any others require for their functioning and growth the wisest kind of leadership. "A people," said Mill, "may be unprepared for good institutions, but to build a desire for them is a necessary part of the preparation." This is a dictum for the leader. His role is not merely to carry on with purposes already established. His role in its best conception is to kindle and evoke new and finer aims—finer not because they conform to some sentimental or arbitrary standards but because of the permanence, quality and vigor of the satisfactions people experience in realizing them.

Industrial institutions, then, if they are to move in a more democratic direction—and there are evidences at hand that this may be in store—require as never before a type of management in which creative leadership is the dominant note. They require creative leadership at every executive level, because the demand throughout business organizations will be for structural arrangements and for an animating spirit in and through which people can grow in a sense of self-fulfillment—a sense secured not in their leisure hours but in the process of living their industrial life. This demand that industrial experience must itself become truly creative for the led no less than for the leader is the unique essence of the new leadership idea.

Third International Management Congress

Rome, Italy

September 5-8, 1927

An American delegation and a noteworthy contribution
of American papers is already assured

Labor's Interest in Industrial Waste Elimination

Four Papers Presented Before a Conference on the Elimination of Waste in Industry, Held Under the Auspices of the Central Labor College of Philadelphia, April 9 and 10, 1927

Labor and Waste Elimination

By WILLIAM GREEN

President, American Federation of Labor

TIME and experience have developed a new conception of the vital problems which affect industry. Our viewpoint and understanding of the effect of industrial processes upon the welfare of all associated with industry have undergone a most revolutionary change. We now find that the line of separation cannot be drawn between any group or groups either interested in or connected with the producing forces of industry. There is no point which can be definitely fixed where the interest of one group begins or ends. The interests of all are so inextricably woven together as to preclude a diversion of effort or objective. One group cannot permanently prosper at the expense of the other nor is any one group immune from the evil consequences of uneconomic industrial operation. Industry is made profitable and the rewards of industrial efforts are increased in proportion to the co-operation established between employers, employees and management.

The exploitation of the workers on the part of employers and management cannot be defended by those who believe in justice and fair dealing. Driving processes are regarded as unscientific and inhuman. The successful employer inspires and leads men and women to give their best service and to do so freely and voluntarily.

The workers understand, as never before, that high wages depend upon the degree of efficiency developed among individual workers and the collective productivity of all who are employed. The basis of successful management as well as the basis of our modern wage structure has been changed.

Modern industry requires management to formulate plans, adopt methods and utilize every reason-

able and honorable means at its command to promote economic production. Wages very largely depend upon successful management and the sustained service of the workers, made possible through the creation of opportunity for personal initiative and group activity.

There may have been a time when working people did not regard industrial waste as pertinent or important. They felt that it was no concern of theirs but that it was a problem belonging to management. Working people were chiefly concerned with wages, hours and conditions of employment. When conferences were held between the representatives of the workers and management discussion was limited by management to those questions. If the workers suggested changes or improvements in industrial methods or processes as an argument in favor of higher wages such suggestions were resented as an intrusion upon the prerogatives of management. Industrial waste, duplication of effort, increased efficiency and productivity were questions which were considered outside the limit of conference discussion between employers and employees.

Because of this mental attitude on the part of employers and employees no joint effort was made to seek a remedy for this condition of affairs. Where the wage schedules and conditions of employment were formulated and posted by employers without consultation with their employees there was no opportunity for a joint discussion of the questions of management and labor. Under such conditions management assumed full responsibility for industrial success or failure. It autocratically fixed wages, hours and conditions of employment and all other questions connected with the operation of industry were regarded as belonging to managerial control and determination. This state of affairs still prevails in some industries.

The working people were keenly alive to the injustice which they suffered under this form of industrial management. They arrived at the definite conclusion that their position in industry entitled them to recognition. They understood clearly that the losses of industry through mismanagement and waste fell heavily upon them. They were conscious of the fact that they could make a larger contribution to industrial expansion and development than they were giving through skill, labor and service and it was out of this state of mind that the demand for the broadening of collective bargaining grew.

There was no other way through which individual and collective expression could be given to the feelings, opinions, ideas and desires of the workers. They insisted upon the right of their representatives to meet with the employers and management upon this common plane of understanding and equality. They believed this to be one of the inherent rights of mankind. It is the recognition of the American principle which served to develop a free discussion of public grievances and public questions.

Back of all the collective skill, strength and power of all the working people of our nation are the soul and mind which give inspiration and impetus to all their physical powers. These unseen forces must be given an opportunity to function in concert with the strength and brawn of labor. From this co-ordination of all the workers' power of production there follows the establishment of a standard of excellency in service which ultimately reaches a maximum of efficiency.

If all the older as well as the newer problems arising out of industrial activities are to be grappled with and dealt with by employers and employees, who in the last analysis, are jointly affected, the machinery of collective bargaining must be more generally and universally utilized and strengthened. Management can do a great deal to prevent waste and further the elimination of waste. On the other hand, labor can assist management not only in dealing with the problem of waste but also in dealing with other industrial problems if given an opportunity to do so. Labor is willing and ready to do its share in the performance of this important work. The trade union is an agency through which this character of service can be rendered.

Waste in industry may be divided into three classifications—material waste, human waste and spiritual waste. Labor has given most careful thought to each of these classifications putting emphasis upon the human and spiritual rather than upon the material classification.

Material waste in industry, however, greatly affects the economic life of the workers. As waste detracts from the earnings of industry so it detracts from the wages of employees. The value of the services of employees may be completely destroyed through the operation of wasteful processes and the experience of an industry may be changed from a losing venture, because of waste, to an earning enterprise, because of the elimination of waste.

The difference between industrial success and industrial failure is many times found in the wasteful processes which often attend industrial operations. The unwarranted destruction of raw materials, natural resources and finished products, the uneconomic use of means of production, negligence in the care of machinery and mechanical devices, indifference to the saving and protection of property and the failure to utilize all facilities available which make for economic production fall within the category of material waste. Furthermore, labor realizes that indefensible waste takes place when labor's industrial efforts go for naught or are unnecessarily duplicated through the failure of management to systematize and intelligently direct the working forces of industry. Practically all of this character of industrial waste can either be prevented or materially reduced. It is not a problem impossible of solution. A joint study supplemented by joint efforts can overcome this destructive evil.

The desire of labor to interest itself in the problem of waste is based upon its wish to secure higher wages and to enjoy improved conditions of employment. So long as industry is only partially efficient labor believes that the wages paid can be substantially increased through an increase in industrial efficiency and the elimination of waste. By the same process the cost of manufactured articles to the public can be materially reduced.

The most tragic feature of our industrial development is connected with the loss of human life and the mental and physical suffering caused by

industrial accidents and unemployment. It is particularly deplorable because it strikes the breadwinner and, in addition to increasing the expenses, stops the income upon which the family depends for sustenance and life. Much of the loss of life caused by industrial accidents is morally indefensible and criminal.

For instance, science has demonstrated the fact that mine dust explosions which result in the loss of hundreds of lives could be avoided through the simple process of rock dusting. Notwithstanding the fact that we are in full possession of this scientific knowledge it is not used except to a limited extent, consequently an appalling loss of life occurs in the mining industry through gas and coal dust explosions. The death rate from accidents is considerably higher in the mining industry of our country than it is in the mining industry of any other nation in the world.

While industrial accidents cannot be absolutely eliminated the fact is that both fatal and non-fatal accidents can be greatly reduced. In this respect alone there is great opportunity to prevent human waste. The injury to society cannot be measured by the loss of earnings sustained by a breadwinner through an industrial accident. There is no standard by which we can measure the bodily suffering, deprivation and mental anguish experienced by the workers, their wives and children who are victims of these industrial tragedies. Human life is so potential, so sacred and so valuable that all scientific knowledge should be used and all practical means and methods employed for its conservation and protection.

Labor has rendered great service through the development and support of legislation for the protection of the lives and limbs of workers in industry. It will serve in every way possible in the furtherance of practical plans for the conservation and protection of the lives and bodies of all who are employed in industry.

One of the most difficult problems associated with industry is the problem of unemployment. It is of such grave consequences as to demand the best of our thought and judgment in trying to find a solution. We cannot evade it or ignore it. We must face it frankly and courageously. When acute it is a menace to society and if permitted to continue over a wide-spread area it serves to threaten the security of government. Reasonably

steady, regular and continuous employment creates a happy state of mind, removes the spectre of want, hunger and misery, begets a feeling of confidence and permits workers to make orderly planning for the future.

Surely a stabilized, continuous policy of employment is within the range of human possibilities. Unemployment is waste of the most vicious kind. It constitutes a waste of human opportunity, of effort and of human creative capacity. It is a lamentable state of affairs when industrial plants fully equipped, modern and up-to-date in every respect are idle and many working people are suffering from unemployment. The trade and commerce of entire communities become stagnant and the financial strain imperils the existence of banks and all lines of business. We could render no greater service to the people of this generation than to find the solution of the problem of unemployment.

When we consider spiritual waste we deal with values which are most sacred and precious. We cannot estimate their worth or appraise their importance. Their maintenance is essential to the success of industry. The highest and best type of service is rendered where the workers are enabled to labor under favorable conditions, in a satisfactory environment and where the exercise of the right to organize for mutual helpfulness is freely conceded. This is true of both skilled and unskilled labor.

The success of industry requires the maintenance of a high morale and that sort of spirit which is inspired by a zeal and enthusiasm for service. Management should inspire and encourage the development of the moral and spiritual powers of the workers by paying high wages, creating opportunities for leisure and recreation, and by consultation with the workers, through their chosen representatives. Low wages, intolerable conditions of employment, excessive hours of labor and autocratic management dull the intellect, break down morale, crush the spirit and chill the interest of working people.

Treatment accorded workers by a management which classifies them as mere machines and which bestows upon them certain benefits, in a paternalistic way, tends to bring about a decline in spiritual and moral values. Management should recognize the right of the workers to develop their spiritual,

intellectual and moral powers. They should be accorded the fullest and freest opportunity to do so. If the workers can help themselves and build up their intellectual, spiritual and economic powers through association in their trade unions they must be given the opportunity to do so.

Our nation cannot maintain its industrial supremacy among all the nations of the world unless it fosters and nourishes those spiritual and moral values which contribute so much to the efficiency of the American workers.

Waste Elimination in the Full Fashioned Hosiery Industry

By GUSTAVE GEIGES

American Federation of Full Fashioned Hosiery Workers,
Philadelphia

THE subject of the elimination of waste is not a theoretical question either to the manufacturer or to the workers in the full fashioned hosiery industry. I think that I can safely say that it is the most urgent and immediate problem which faces this particular industry today. The question of waste should probably be just as important in other industries as it is in the full fashioned industry but because of a chain of circumstances it has come very much to the fore with us during the past year or so. And because of the peculiar interest which the manufacturers and men in our industry are taking in the question of reducing wastes I am very pleased to have this opportunity of bringing our problems before you today in the hope that we may all gain something by a joint discussion of this topic.

I would like to say in the first place that I am here this afternoon speaking as the President and Business Representative of the Philadelphia Branch of the American Federation of Full Fashioned Hosiery Workers. I am also speaking as Vice-President of our national organization, the Federation itself, which is affiliated with the American Federation of Labor through the United Textile Workers of America. The Philadelphia Branch of our national body is, however, larger than the total membership of all the locals throughout the country put together. This is simply because of the fact that Philadelphia is the world center of the full fashioned hosiery industry and the big

bulk of full fashioned stockings are made in this city.

I went to work as a knitter when I was not yet fourteen years of age and for almost nineteen years I worked at this trade. For the past ten years I have been acting as business representative of the knitters' union. During these years I have been constantly engaged in the study of the technical problems of our industry. The full fashioned hosiery worker is paid on a piece price basis. This means, of course, that the worker gets paid according to his output. The result of this is that the job of the business representative is to have an exceptionally wide understanding of his trade in all its ramifications. Leaders in our union simply must be well informed as to the technical side of all production problems because as styles change from time to time we must be ready almost overnight to revise our whole series of prices.

The growth of the full fashioned hosiery industry has probably been more rapid during the past three or four years than any other industry in the country. The short skirts worn by women today have created a tremendously increased demand for the full fashioned stocking. During 1923 the industry produced about ten million dozen pair of hose and half hose. In 1926 the production was over twenty million dozen of hose and half hose. New mills are springing up all over the country, especially in the South, at such a rapid rate that hardly anybody seems to be able to keep track of them.

Now, why do I say that the problem of waste elimination is the most important of all the problems facing our industry today? And why are the organized workers so deeply concerned with this question? In the first place the cost of raw material is the most important item in the cost of a finished stocking. Silk hosiery is the staple product of the full fashioned industry today. A few silk and cotton, silk and rayon, or silk and wool stockings are made on full fashioned machines but the proportion is very small compared to the production of all-silk stockings.

Wages in the full fashioned industry probably average higher than in most industrial occupations today but the labor cost of a pair of stockings is low. The proportion of the cost of a stocking which goes to labor is about twenty-five per cent

of the price for which the manufacturer sells his goods to the wholesaler.

The big overhead cost of a full fashioned mill, which is caused by the expensive nature of the machinery used and the expense of keeping it in efficient operation, is another big item in the cost of producing stockings. The full fashioned machines cost from \$6,000 to \$10,000 apiece and if not properly operated can be rendered useless in a short time.

It is vitally important that goods of the highest quality be turned out in the full fashioned factory in order that the highest profits may be realized. The texture of the stocking must be of the finest and there must be no imperfections in the knitting. The successful merchandising of the silk stockings depends on the reputation for quality which the manufacturer or merchant is able to establish. The whole selling emphasis must be on quality. Price is not of primary importance either to the purchaser in the retail store, to the manufacturer or to the middleman. They all must have quality and style. Profits for the manufacturer in an industry of this character must therefore come out of increased elimination of waste and a reduction of overhead expense. Labor costs in well managed mills are considered to be of secondary importance. The full fashioned manufacturer today must reduce the proportion of seconds, or irregulars, to the total production in his plant. The difference between the amount the manufacturer receives for seconds and what he receives for perfect goods is often more than the entire labor cost in the best pair of stockings. Later on I will explain why, but let me add at this point that in our industry quality production also means quantity production. If the knitter is making good stockings he is also making a lot of them, and therefore, is making a good wage. And when he is making imperfect work he is losing money just as the manufacturer is losing money. It is to the worker's interest to make as few seconds as possible and to prevent break downs.

Is the knitter or his employer primarily responsible for a high output of seconds and a big wastage of material in a full fashioned plant? The most common cause of bad stockings is poor silk. The most skillful mechanic with the best machinery now on the market cannot make perfect stockings when his silk is of low quality. Too many em-

ployers, however, waste their money and their employees' time and effort by the purchase of quantities of inferior grades of silk. Therefore, we may definitely say that the principal cause of loss through having many seconds is due to the employers' shortsightedness or lack of judgment.

The second most common cause of bad work is insufficient attention to mechanical upkeep or lack of skill on the part of the fixers in the plant. In our industry the men who are responsible for the proper upkeep of the full fashioned machines are men who have been knitters and have had some training as machinists and are called fixers. In most cases these men are also floor foremen or are the bosses in small shops.

The full fashioned machine is probably the most delicate and complicated piece of mechanism now in use in any type of industrial establishment. The machine has fifty thousand parts and all of them must be in perfect order or the stockings will have a defect and will lack the proper appearance. The adjustment of the machine is so delicate that a sudden change in the atmosphere may cause it to produce spoiled work temporarily. The unit temperature in the shops must be carefully regulated or good knitting is difficult, and not enough care is sometimes given to this matter. In many shops we find that the replacement of parts, which are usually not expensive or hard to get, is postponed or forgotten, with the result that after a time the knitter is bound to produce bad work no matter how hard he may try not to.

The human weaknesses of the knitter is the third most common cause for bad work and all the waste that this entails. Simple carelessness and inattention we find to be at the bottom of some of the spoiled material and unnecessary breakdowns of machinery. Sometimes it is lack of training which causes the knitter to fall down on his end of the work. But the fundamental cause of the waste caused by the workers in almost all cases is the disturbed mental condition of the man or woman in the shop due to bad relations existing between the employer and his employees. One of the most up-to-date detective agencies now soliciting business from full fashioned manufacturers has a fine line of talk which it uses in trying to persuade the employers to hire spies and trouble makers from the agency. This organization talks about the "passive resistance of the worker to his

employer." Now we must admit that this is often a real condition in modern industry. The worker carrying round with him a strong feeling of resentment and not knowing what to do about it or being denied any opportunity of making an adjustment of his grievance, will subconsciously, if not consciously, slow down on the job or fail to do his best work.

What can be done to remedy these conditions? What is being done and what are we trying to do to correct these evils which lead both to actual waste of material and also to waste of manpower and loss of profits?

It must be stated that, on the whole, management is improving. In our industry at least we can report a real improvement in the methods of plant operation and in the relations between employers and employees in a number of cases. We find, where the workers are well organized and well disciplined, that the employer realizes he must improve his manner of running his business if he wishes to make more money and compete more successfully because he cannot hope to get anywhere by cutting wages. Where the employer is in a position to cut wages, more or less at will, there the tendency will always exist to follow the line of least resistance and substitute pay cuts for better management. Many fail to realize that this policy is simply a sort of industrial suicide. In too many cases we have found the employers will put off the installation of all efficiency schemes until they are presented with an organized group of workers who simply refuse to tolerate a condition which prevents them from giving the best service to the industry.

Management will become more efficient, we feel, when labor is militant, educated, progressive and when it shows a willingness to co-operate with management in operating labor saving devices. In our industry we feel that the willingness of our organization to try out new devices and methods at all times has, in the long run, added to our earning power and has probably done even more to add to the employers' earning power.

As competition in our industry becomes keener, waste elimination will become a more serious question with the employer. The tendency to reduce waste in material by a more scientific system of purchasing the raw material and to discard the stupid system of saving pennies and wasting

pounds is becoming more marked each month and will, in time, help to make our industry much less wasteful and more prosperous.

As regards the fixer problems, much trouble is caused, even in some shops where the union has an excellent understanding with the owners of the concern, by the know-it-all attitude of the foremen fixers. The difficulty of the average worker in finding his balance when given a position of authority is a serious one and a big stumbling block in the path of all industrial progress. The fixer in our shops only too often will put a machine out of commission by his refusal to admit that he cannot adjust the imperfection in the mechanism or by his refusal to consult with the man working on the machine before attempting to locate the trouble. The knitter works on one machine continually as a rule. A man working on a particular machine will generally have a clear idea of the mechanical cause of the trouble he is having even if he is unable to remedy it himself. The fixer is too apt to ignore the knitter in cases of this kind and much loss takes place as a consequence.

This is a minor problem in industry perhaps but it is a typical one and should be followed up by students of industrial efficiency. How are we to make foremen and petty bosses assume a more rational attitude towards the men under them? I feel that the employers must be educated to see the danger in this condition and to remedy it as far as possible by their own attitude towards the workers and the problems of the mill. Too often the foreman is the football between the boss and the man and cannot do much better than he does. Certainly, however, the employers could save a vast amount of lost time in their shops if they would seek to hire fixers primarily for their mechanical ability and not merely because of their willingness to nag the men. And it is up to the employer, and to management generally, to invest in the proper education for their mechanical supervisors so that each mill has the necessary expert assistance always at hand to obviate the troublesome and difficult delays caused by needle smashes and spoilation of fine machinery. The employer who can be made to see the problem in this light will find the kind of men who will be real fixers.

That efficiency and waste elimination really pay in our industry has been proven to the satisfaction

of many. Concerns such as the Phoenix of Milwaukee and the Gotham, Lehigh and William Brown companies of Philadelphia, which are among those which made the highest profits on their investments last year, are firms which cooperate with the union and which often pay above the union scale of wages in their different plants.

In the unfair shops in our industry, where we have long hours and low wages—twelve a day in some cases—the labor costs per stocking have been proven to be no less, and are often more, than in the concerns working the standard forty-eight hour week and paying top prices to the employees. The open shops in a great many cases simply cannot establish a reputation for their goods on the market and in only a very few cases can they turn out the higher priced articles. Waste runs to extravagant lengths in some of the southern shops where a surprising percentage of the work made is not up to the standard.

The union has amply demonstrated that in our industry the average volume of production per machine over a period of time can be brought to its highest level with the forty-eight hour week. The worker can work at top speed with few mistakes for just so many hours a day. If he works longer than that waste and low production set in. Therefore, we believe we have brought about through our union a great piece of waste elimination in the sense that we have cut out many thousands of hours of needless human effort per year in our mills. Surely in a real sense this is a saving of much that is of great value to society. What does it profit society as a whole if we merely bring about the reduction of the wastage of inert material and an increase of profits for the employer without at the same time doing something to improve social conditions through making the lives of the men and women engaged in industry better and happier? If a man or woman has more time to devote to his or her home and to self-improvement we do actually reduce social waste in the great majority of cases. And that is the kind of waste I am mostly concerned about. I want to see the employers make profits so that our industry can thrive. But I won't do a thing to help any industry if that industry cannot at the same time gradually improve the conditions of the people working in it.

Philadelphia manufacturers have won a reputation throughout the industry of producing the finest

fabric in full fashioned knit goods of any market in the country. This is due, I am convinced, very largely to the high percentage of skilled mechanical ability employed in the shops in this city and is also due in very great measure to the improved morale of the large majority of workers throughout the union-controlled shops in this town. Through the establishment of fair working conditions here the majority of employers have won the confidence and interest of their employees. In most cases the workers are interested in their work, make fewer mistakes due to inattention or carelessness and when good work is appreciated by the employer take pride in doing their best. This all tends to insure to the employer a fine quality of goods and a minimum of shop trouble. Our organization protects men and women against injustice and unequal treatment but it does not oppress the employers by trying to protect the individual against the consequences of his own inability or improper conduct. No more glaring example of waste could be cited than that of keeping incompetents at jobs they are not fitted for.

I have already referred briefly to the fact that in our industry quality production almost invariably means quantity production. This is another factor in waste elimination. Overhead costs, which are figured in most mills at about one dollar per dozen on stockings which are sold by the manufacturer at about twelve dollars per dozen, are automatically lessened as the average output per machine increases over a period of time. When the knitter is turning out good work his machine is operating perfectly and his total output increases due to the fact that he has to make few stoppages for corrections on his machine.

The official policy of our organization is to encourage capacity production, although of course we stress the fact that the worker must not speed up to the point where he produces a contrary reaction on his health or makes the pace too swift for the man who is not a race horse. Naturally we limit hours and overtime.

We are not blind to the dangers of over production. We are well aware of the fact that over production brings in its train a greater social wastage perhaps than under production and at the same time brings tragic consequences for our workers. What we have done among other things in regard to this matter is to make a study of the

market for full fashioned hosiery in an effort to determine whether there is any immediate risk of a glut in the market. Our program is to try and educate our employers as well as our members to the evils that would fall on us both should our industry drift into the condition which the producers of soft coal, cotton and wheat have experienced in recent years. Our products have now graduated out of the luxury class and have become a staple requirement of the great mass of becomingly dressed women. We have decided that the limitation of production in the shops would not really reduce the danger of over production but would only cause an added influx of machinery and a loss of business. This in turn would affect steady employment.

The rapid extension of the hand to mouth buying system has made quick deliveries imperative in the hosiery business. We urge our members to assist the manufacturers to attract business from unfair shops by enabling them to meet the demands of the market. And in this we have frequently succeeded. The rapid style changes in hosiery, the sudden demand for new colors, for black bottoms and what not, all require quick deliveries from the mills. Style changes stimulate business. We seek to assist the industry by making our people receptive to the need for the adaptations required in the production of these fancy heels and various other novelties. We obviate conflicts between employers and employees by having our people maintain a steady average of high production at all times when conditions in the shop make this possible.

Quantity production is also maintained in some measure through specialization in the various operations in the manufacture of a full fashioned stocking. We encourage specialization. We also seek to have every boy and girl who comes into the trade trained as thoroughly as possible so that the industry is at all times assured of an ample supply of skilled people who are ready for all and any changes that the industry may require. The man knitter may be a specialist but is also well trained in the whole groundwork of the trade. I might mention that in our shops each department is dependent on the other for uninterrupted operation. Each job in the complete routine of production must be as keenly watched as any other, and only by avoiding all friction between these depart-

ments of specialists and having real co-ordination between them at all times can we have maximum output in any given plant. In reducing inter-departmental frictions we avoid much waste.

Our union has taken a very strong attitude towards the conduct of our members in the various shops and we are now insisting most emphatically to all our people that they have a definite responsibility in this whole question of waste elimination. We say that we owe to our industry the duty of doing whatever we can to reduce waste of all kinds. Naturally we are not one hundred per cent perfect in carrying out our ideas, but I do believe that we have actually taken the leadership in the industry in bringing about the adoption of more intelligent policies in such matters as these. The traditional methods of labor unions in the past to maintain the status of the worker in industry must be revised in many ways. We must reduce waste effort and waste of money in strike pay and lost wages just as well as the employer must reduce his percentage of losses through labor troubles. Threats of strikes must be reduced to a minimum as a method of dealing with employers. We cannot use force so frequently as we did in the past and we should not do so even if we could. Surely the power of reason and the influence of education should be brought more into play in modern industry. I do not mean that a trade union should be one bit less militant than in days past. Our organization is every bit as ready to fight today as ever it was but we are much wiser than we were in our earlier days, I feel. We want to get our rights without all the waste required by warfare. And if we have as much brains as we have courage it can be done, I believe. The position we take with our workers is this. We say that the union must win increased benefits for the workers by making the services our members render to the industry so invaluable that the industry will be bound to recognize the need for encouraging this improved service. We have gone into shops in this city in the past few weeks and we have noticed quite an improvement in their production records. We found out why our people were not doing their best work and we stimulated extra effort on the part of groups of workers who had become indifferent for various reasons. These employers have thereby been firmly converted to the idea of doing business through the union and one less

menace of trouble and waste in the industry has been removed. By increasing the intelligence and the morale of the workers in the full fashioned plants in this city, through our enlightened labor union methods, we believe we are demonstrating the great superiority of the trade union organization as against the company union and the so-called welfare worker. Sometimes our employers do not respond easily and then the power of our union can be brought into play, but we so seldom have to force an issue when it becomes clear that our members are really the only people the employers can profitably employ year in and year out. For instance, simply by reducing the labor turnover in the full fashioned mills the employers can save many thousands of dollars.

Above everything we believe that we can reduce waste of all kinds by developing an understanding among the workers in the industry that misuse of material and men is socially harmful and therefore harmful to both management and men. By developing a real sense of responsibility in each and every worker in the full fashioned industry towards his industry and his union we can bring about an enormous conservation of human effort and expensive material while at the same time cutting down running costs and adding to profits and wages.

Workers' Participation in Job Study

By GEOFFREY C. BROWN

Consulting Engineer, East Orange, N. J.

ONE of the most characteristic tendencies of modern times unquestionably has been the rapid spread of what is known as the scientific spirit. For upwards of half a century this spirit has been leavening thought, seeping into activity after activity and determining, ultimately, the manner in which an ever increasing variety of problems must be approached and their solutions sought. Like many other terms that have been bandied ponderously to and fro, the meaning of the phrase "scientific spirit" is extremely simple. It signifies a spirit of truth seeking, a desire to know all the facts before essaying the next step. It implies conscious recognition of the fact that social progress, in order to be sound and safe, must rest on accurate observation of things as they are, fol-

lowed by careful inference as to how these same things perhaps may be improved. In this manner the scientific spirit wisely fashions from the substance of the world of yesterday and of today the somewhat different world of tomorrow.

Job study, or job analysis as it is sometimes called, is a term used to designate the scientific method when applied to the performance of work. It signifies a careful study of any work operation for the purpose of establishing and placing on record all facts in regard to its work content, manner of performance, output possibilities and influencing factors. Such a study has as its general aim the development of a body of knowledge as to how, under existing conditions, particular jobs may best be performed; "best" in this sense implying on the one hand the idea of greatest safety and general security to the worker, and on the other hand the idea of greatest economy in the expenditure of time, material, mechanical energy and human effort.

It is well known that workers have been exposed to inequitable working conditions owing to ignorance on the part of traditional management, and on the part of the workers themselves, as to a fair work content and output standard for different operations. It has been further established that there is in connection with work much preventable fatigue, ill health and accident through ignorance or carelessness as to the safest way in which particular operations might be performed. It is also known that workers are exposed to much daily monotony and drag owing, doubtless, to absence of knowledge as to the most interesting way in which work periods might be arranged and work performed. It has been established, finally, that in many shops there is unnecessary waste of time, material, mechanical energy and human effort with increased cost of production—owing to ignorance as to the most economical way in which particular jobs should be performed. These four considerations—equity, safety, interest and economy in the performance of work—provide from the workers' standpoint a conclusive argument in favor of job analysis.

For practical evidence of the necessity of job study from the workers' point of view we do not have to go far. This evidence lies all about us. Recently I spent an evening at the home of an official in the United Hatters' Union. Conversa-

tion drifted to the subject of agreements between his union and the hat manufacturers. I seized the opportunity of asking whether, in his long experience, these agreements had been based, in any instance, on a scientific survey of the hatting industry. Had information been available, for instance, to prove that management in the industry was generally efficient? Were wage contracts established on a foundation of revealed costs? Had price lists ever been based on accurate knowledge of the amount of product a skilled worker could turn out in a given time under the best conditions? Were the latter scientifically on record? Had there ever been a concerted effort on the part of the United Hatters and the Manufacturers to eliminate unnecessary waste in the industry, so that the best balance of wages, hours and conditions might be intelligently maintained? The answer to these questions was a gigantic "NO." "Moreover," added my friend, "we have continually sought from the employers just the sort of knowledge that you describe, but in no case has it been forthcoming. Either they do not possess it or are willing to give it out." Briefly, information necessary to the negotiation of an intelligent agreement was not available, or if available was being withheld by the manufacturers. Instances like this—and they are typical in greater or less degree of industry as a whole—have convinced me of the utter necessity from organized labor's standpoint not only of job study, but of labor's active participation in the conduct of job study.

In addition to this material justification, however, there is another reason for the participation of workers in job study, a more intangible reason, perhaps, but of boundless importance nevertheless. It is this. As industry is now organized, only by such participation can workers gain any freedom of initiative in the creative aspect of production. This idea may be expressed perhaps with more clearness as follows. In view of the great scale on which industrial operations are now conducted, and in view of the extent to which division of labor and specialization are now carried, only by some form of participation in job study can workers gain any opportunity for necessary self-expression in their daily work.

Let me review very rapidly the evolution of industry during the past century or more. The

industrial revolution of the latter eighteenth and the nineteenth centuries eliminated from our life the domestic manufacturer and the handicraft journeyman, both of whom owned the simple tools with which they worked, and gradually developed in their stead a small body of capitalist employers who possessed the newly invented machine tools, and "who employed at wages a constantly increasing mass of propertyless workers struggling," as Beatrice Webb tersely puts it, "like rats in a bag for the right to live." The worker who in the era of handicraft had opportunity to express his individuality in the excellence of his product and who thus, in a certain sense, dominated the exercise of his craft now became the servant or at best the adjunct of a machine to which the skill of handicraft, in the logical course of mechanical progress, had been gradually transferred. Throughout the nineteenth century industrial plants increased greatly in size; division of labor or specialization, as it is usually termed now, was developed to an extraordinary degree; machines were invented to perform each of a great variety of stages in the manufacture of a product and the worker now found himself not only the servant of a machine, but working on the tenth or hundredth or thousandth part of the product instead of on the entire product as formerly. The latest phase of the industrial revolution was entered in the last decade or so of the nineteenth century when industrial engineers, confronted by the vast complication of modern industry and by the great menace of industrial waste, developed the nucleus of a new science of management. The technique of this new science was quickly seized by employers who because of inexperience, inadequate knowledge, lack of patience or sheer cupidity too often made it a means of further degrading and exploiting the worker's function.

This brief historical survey is important because it indicates the manner in which increasing specialization in modern industry has tended to narrow, to virtual disappearance, the average worker's scope for creative self-expression in his daily work. It is with the more advanced phase of the industrial revolution, however—the recent development of a management science—that I am mainly concerned throughout this paper. For job study is a fundamental element in this science, and as I have mentioned, I believe that only through active

participation in job study can workers recover a measure of the old initiative, pride of craftsmanship, or whatever we choose to call it, that for more than a century they have been steadily losing.

I have referred to the fact that the new technique of management was quickly seized by employers and that in some instances this resulted in a deterioration of the job from the worker's point of view. I think I can best illustrate this process by delving back into my own past experience. In the year 1911, just at the time that the new scientific management technique was gaining considerable headway throughout industry, I obtained employment as a lathe hand in a large automobile plant in Detroit. I had served what was equivalent to an apprenticeship in the machinist trade and considered myself a competent all-round mechanic. My new job was a fairly simple one, as lathe work goes, and consisted of taking a rough and finish cut off the outer surface of brass bushings used in the interior of valve cylinders. One by one I picked these bushings out of a pan on the floor beside my machine, machined them to a blueprint tolerance of a half a thousandth of an inch, and then dropped them into a second pan at the opposite end of the machine. It was close work and I found it mildly interesting. During the first month or two I devised a number of expedients to increase my output. There were intervals, for instance, during which I was delayed through having no material on which to work. By conferring with the foreman of another department the cause of these delays was discovered and a fairly uninterrupted flow of material to my machine assured. I obtained permission, also, to build a sort of chute over the lathe so that material flowed to me by gravity, thus saving the considerable total of time formerly spent in lifting material by hand from the floor to the machine. One or two other stunts saved additional time and increased output proportionately. I had been working in this manner for a few months when one morning the foreman of my department approached, accompanied by a stranger armed with a board having a stop watch mounted in its upper corner. This individual, the foreman informed me, was going to time study my operation very minutely. The study was authorized by the management and I was to answer fully all questions in respect to

my work. The foreman then disappeared, whereupon the observer proceeded, in a diplomatic way, to interrogate me about my operation. My replies were noted down meticulously on an observation sheet. Next I was asked to start my lathe and to work at an average rate of speed, neither too slow nor too fast, while the observation was in progress. When about an hour had passed the observer informed me that he had secured all the data necessary for his purpose and that the observation was at an end. He then disappeared in the direction of the office. Presently things began to happen. First a millwright installed a different pulley on my overhead shaft so that the lathe would turn at a higher rate of speed. Next a tool-setter informed me that my cutting tool was not of the best shape and that, in line with instructions just received from the office, henceforth I must use a tool of another shape. Finally a typewritten instruction card prepared, ostensibly, in the office by the time study observer, was given to me for my future guidance. This instruction card showed the various stages in my operation with a corresponding time standard for each; it stipulated the speed of the lathe and the type of cutting tool I was to use; it described in detail all the necessary equipment, not forgetting my gravity chute; it informed me, finally, that if I worked diligently along the prescribed lines and completed my "task," as they now called it, within the time allowed, I would receive a bonus of something-or-other per cent over my regular earnings. There was an inference also that any future changes would be originated away off somewhere in a planning office, and I must now concern myself exclusively with following instructions as they came from this source. From my standpoint it was a little as if the substance of the job had suddenly vanished in thin air. I had become like one of the mannequins that we sometimes see crossing the vaudeville stage on invisible wires operated by someone in the wings. I worked along in a half-hearted way for a few weeks longer. I wasn't interested in the bonus, and I don't think I ever earned any. At length I threw up the job and soon afterwards obtained work in another shop where I received less money but regained much of the old freedom which I had had.

I offer this somewhat egotistical account only because of my later discovery that it parallels the

experience of many other workers who came in contact with scientific management during the period of its naïveté. A few years later, when my outlook had broadened to an interest in the entire field of industrial management, I became aware of the psychological problem that this earlier experience presented. Why had I been fairly contented at the lathe job before it was taken over by a planning office, and why was I dissatisfied afterwards? No answer was presented by a scrutiny of the objects which the study was designed to accomplish, for these seemed wholly desirable. It was perfectly obvious to me that machines should run at an efficient rate of speed, tools be ground to the best shape, workers perform their jobs with a proper economy of time and effort and intelligent output standards be established for different jobs. It gradually dawned on me that the answer lay in the fact that the job formerly had made demands on my intelligence and thus engaged my interest. When the management took over exclusive control both of the conduct and the results of job study, I was deprived at once of the opportunity and the necessity for exercising my own wits and was unable, thereafter, to devote myself wholeheartedly to my work.

There is growing recognition among engineers today of this inadequacy in many of the earlier applications of scientific management. As Samuel Gompers once stated, the new technique "failed to discover all the fundamentals." The inadequacy, however, was not due to any unsoundness inherent in scientific management, but rather to a decided unsoundness in the pioneering use of certain of its principles. And an increasing number of industrial engineers are glad now to make this acknowledgment. Dr. H. S. Person, Managing Director of the Taylor Society, has expressed the new attitude as follows.¹ "It has taken nearly fifteen years of observation, experiment and thinking to discover the real meaning of scientific management—that it is essentially co-operative and that without co-operation it cannot exist."

This new view of job study is supported today by the experience and testimony of progressive managers, labor leaders and engineers, and there is much unanimity as to the general character of the necessary remedy. The latter, it is believed,

must be found in a new conception of job analysis conducted so that the individuality of the worker and his subjectivity to his job, instead of being sacrificed, will be preserved and in every possible way enhanced. I am convinced that this can be accomplished only by the joint participation of workers with management in the conduct of job study and in the control and application of whatever facts are established by job study. Let us consider in a tentative manner possible ways in which such participation may be assisted.

The first necessary step is one that even now is finding effective application in many progressive plants. It consists of the establishment of a joint job analysis committee thoroughly representative of everyone in a shop concerned with, or affected by, job study. Such a committee should, I think, represent three interested groups. The workers must be fairly represented, management must be fairly represented, and as certain aspects of job study are technical in character, the committee should have at least one technical member representing a central planning office where technical details have been previously worked up into results for the joint committee's consideration. Sydney Webb, in his little book "The Works Manager Today," suggests that half the committee members should be elected by the union local and half by the shop as a whole. It is unwise, however, to lay down set rules regarding the exact constitution of such a committee, as the character of the industry, the form of the labor organization and local shop conditions must all contribute toward developing its ultimate composition. It is sufficient to emphasize that it should be in every sense a joint committee; that it should fairly represent the workers in that particular shop, their union and management; and that it should be served from a central planning department with whatever technical assistance may be necessary.

Assuming the existence of a joint job analysis committee constituted along these general lines, let us glance briefly at the work which it must accomplish. In doing so, it is well to keep before us the general aim of job study, which has been stated as "the development of a body of knowledge as to how, under existing conditions, particular jobs may best be performed; 'best' in this sense implying, on the one hand the idea of greatest safety and general security to the worker, and

¹*Bulletin of the Taylor Society*, Vol. X, No. 3, June, 1925, pg. 130.

on the other hand the idea of greatest economy in the expenditure of time, material, mechanical energy and human effort." The job analysis committee must thus receive and consider suggestions tending toward the more efficient co-ordination and use of raw material, supplies, machines, tools, fixtures, mechanical power and human effort. It must also receive and consider suggestions relative to the proper guarding of mechanical equipment, ventilators or fans to draw off injurious fumes, adequate illumination and shop sanitation generally. It should also approve all piece work rates, the latter based on minimum wage standards previously established by collective bargaining.² The job analysis committee should also, I believe, consider suggestions relative to the amelioration of monotony and fatigue in the performance of work. It is interesting in this connection to note the frequently recurrent proposal that workers on very tedious and uninteresting jobs might master a second somewhat different operation, and engage during alternate periods in each; the morning, say, being spent at one job, and the afternoon at the other.

The joint committee on job analysis thus becomes in the strongest sense a "suggestion" committee, and it is in this character that it amends the shortcoming of job study conducted along the lines described a little earlier in this address. By establishing a job analysis committee representative of all the workers and then making it accessible to suggestions from each worker, the latter is rendered subjective to and, to the limit of his skill and intelligence, the investigator of his own job. The joint committee thus assumes the role of a judicial court convening regularly to pass on the economy, availability and general merit of suggestions from the shop.

I wish to lay particular stress upon one element in the work of a job analysis committee. It is the detail of adequate recognition for meritorious suggestions from workers. It would be difficult to place too much emphasis on the general proposition that good suggestions should be recognized in some systematic and distinctive manner. I have found in the functioning of shop committees that this detail of recognition too often is handled in some perfunctory and unsatisfactory way. It is

²This applies while wage incentives continue in use in industry. See author's discussion of "Financial Incentives," pg. 435.

well to remember in connection with recognition that there is an intangible reward that is precious to nearly every human being. This prize is honor. Whatever else is given—and I think that there should be some material reward—good suggestions from workers invariably should be *honored*. Special recognition of this character, however, should never be offered as a substitute for legitimate promotions, fair wages or increases in pay but should be separate from, or supplementary to, regular advancement.

Job analysis committees exist today in open shop establishments, functioning as subsidiary committees of company unions. I wish to be fair to company unions. I think that they have some merit in the experience of parliamentary and conference procedure that they are giving to worker members. But as a means of giving the worker an actual voice in determining the conditions under which he will work, and giving him a sense of initiative in the suggestion of improvements, they are inadequate. A number of company unions have come under my observation during the past ten years, and I have found them, without a single exception, anaemic affairs, deficient in general vitality and possessing, from the workers' standpoint, no economic power whatsoever. *The joint job analysis committee in any industrial establishment needs the reinforcing strength of the workers' regular trade union.* Thus reinforced, the workers gain a sense of freedom and strength which is part of the essence of independent and creative thought, and let me remind you that independent thinking on the worker's part is a necessary condition of his effective participation in job study. Thus reinforced also, the word *co-operation* becomes, from the worker's standpoint, something more than a meaningless abstraction, for he is then able to co-operate on something approaching a basis of equality. In the company unions that I have seen the workers, to express it in Irish style, have been engaged largely in assisting the boss to co-operate with himself and in applauding whatever success attended his effort in this direction.

This, however, indicates a new responsibility which is beginning even now to rest on the labor movement, and of which, if this important Conference on Waste Elimination may be taken as evidence, labor is becoming fully aware. *It is the responsibility of requiring, and insisting and demand-*

ing, that industry be managed efficiently and economically; and of being prepared to participate fully in whatever steps are necessary to attain progress in this direction. Labor, I think, can best achieve this end by co-operating with science—seizing the proven elements of the new science of management, job study among them, and applying them not only to industry, but in the labor movement itself. I venture to say that there are few labor problems, just as there are few industrial problems, that will not yield to the scientific approach. Problems of organization—getting new members into the unions—problems of co-operation, problems of internal administration and routine, are all susceptible to the scientific method. You may say, "But labor problems are different." Of course they are. Every problem in certain important respects is different from every other problem. That is why it is a problem. When the scientific method—the method of observation, experiment, inference and verification—is employed, the next safe step invariably unfolds, direction is vouchsafed, and we are permitted to see a little into the future. I have always liked the symbolism that depicts science as a hand holding up a torch, shedding light on the present and throwing beams into the future. Labor problems will respond just as surely to science as have problems in other fields.

Job study, as I have mentioned, is the scientific method applied to the performance of work. Through its development workers will surely be assisted in the attainment of that for which they have long striven—fair wages, fair hours, fair conditions of work—and what is even more important, they will gain essential knowledge as to how these conditions may be preserved and progressively advanced. By participation in job study, through representative committees, workers will gain increasing opportunity to share in the creative side of production and will, I believe, be moving in the direction of a new interest and a new self-expression in their work.

Finally, let me quote two short passages which seem to encompass all that I have tried to say. In the second volume of Samuel Gompers' "Autobiography," in the chapter entitled "Problems after Armageddon," occurs the following.³ ". . . I have my dreams as to what ought to exist in

³Samuel Gompers, "Autobiography," Vol. II, Chapter XLXVII, p. 523.

industry—a dream of co-ordination of all in production with unrestricted opportunity assured to all to devote mind and skill to production and distribution in the service of human needs. At one time I proposed to my colleagues on the Executive Council that we formally lay before other groups in production a proposal to co-operate in concentrating on the creative aspects of production. When my suggestion was rejected I withdrew it, not in discouragement, but with the conviction that the future would reverse the decision." The following from an earlier chapter⁴ is also quoted. ". . . Economic justice will come through the organization of economic agencies, the increasing adjustment of economic relationships in accord with principles evolved by experience, the formulation of definite scientific standards, and development of the principles and co-ordinating functions of management, based upon understanding of human welfare. Just where this sort of activity will carry us—who can say? But of this I am certain, it means progress toward a better day."

Scientific Management and Waste Elimination

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IT is really surprising to find out how little is generally known about wages; the subject seems so simple that nearly all of us think we know all there is to know about it. But do we?

Not long ago traveling on the Pennsylvania Railroad a man sitting opposite me in the dining car called to my attention a reprint of an editorial from a Philadelphia newspaper according to which labor on the "Pennsy," as we call it, gets, as I remember the figures, something over half of the gross receipts of the road and, therefore, ought to be completely satisfied and happy. Having read the article at the suggestion of my neighbor, I of course felt obligated to comment upon it one way or the other, and the best thing I could think of at the time was to say that I was surprised that a railroad so intelligently managed and operated, in the main, should endorse and republish such an absurd argument. He said, with some

⁴Ibid, pp. 26 and 27.

asperity, that he could "see nothing absurd about it."

I then confessed that I happened to be fairly familiar with industrial matters and thought I could mention plenty of occupations in which the workers got a much larger share of the gross receipts—in fact, nearly all of them. He wanted to know in what kinds of industry this could happen and I mentioned the digging of drainage ditches by hand with shovels. Here practically all the gross receipts are paid to labor. Each man supplies his own shovel and the boss pays out his money for nothing else but labor. Here, supposing twenty men to be employed, labor may get ninety per cent of the gross receipts; the boss one-ninth as much. But are the ditch diggers better off with their ninety per cent of the gross receipts than the railroad men are with their fifty odd per cent? Percentages mean nothing in such matters unless we know a lot more than per cents.

Averages and percentages are very deceptive things unless we are sure we know how to interpret them in a given case. A man was once drowned in an attempt to wade across a river the average depth of which was only two feet and Louis Post used to tell us of a fishing club the members of which had an average of a million dollars each. There were fifty members, among them one of the Vanderbilts. He had fifty millions; the rest of the members had nothing to speak of but some fishing tackle and some old clothes to fish in. It is much the same with figures of wages at different periods and in the same period in different countries. We don't know what they mean unless we know a lot of things other than the mere figures of wages.

I had occasion very recently to look into the matter of wages of machinists fifty years ago and to compare them with the wages of today. As nearly as I could determine from the available data, wages of machinists and tool-makers today are about three times what they were half a century ago. Some of our labor union friends may be inclined to say that these higher wages are due to their efforts and sacrifices; others may attribute them to various and entirely different causes and all of them may be not only entirely sincere in their judgments but, in part at least, correct.

Living expenses have certainly trebled at least in the fifty year period and these have been considered, on the one hand, as the cause of the advance in wages, while on the other hand it has been contended that high living costs are the effect rather than the cause of high wages. As a matter of fact the two things have no doubt acted upon each other reciprocally.

An acquaintance of mine who happens to be an engineer built a house a few years ago. When the contractor was about to begin work on the house this engineer took a sheet of letter paper and ruled it horizontally and vertically, with a space at the left for entering the names of the various main divisions of the work such as "excavations," "foundations," "walls," "roof," "floors," "finish," etc., and a space across the top for entering various periods of time. He then asked the contractor to say how long he thought it would take to do these various things and as the times were mentioned the engineer drew horizontal lines, beginning at the date when the work was planned to begin and ending when it was thought it would be completed. He explained that his chart, showing as it did just when each division of the work should begin and when it should be completed, would make it easy from the beginning to know at all times whether or not the work was progressing as it should, and, if not, how far behind it was getting. By this means there would be no surprises, or discoveries at the end of the contract term that the work was far behind. It was thought that the contractor might not like this very well, but he did, and seemed to perceive clearly and readily that it would be a help to him.

The work went along very well until it came time to use the "trim," that is, the inside finish wood work, which had been sub-contracted to a mill some distance away. No shipments could be got from that mill and the work stood still for a long time. Finally the engineer said to the contractor, "I think I know what is the matter at the mill. They have simply taken all the contracts they could get and have promised delivery on any date the builder said he wanted the stuff. They have done this without the ghost of an idea as to whether they could make deliveries on time or not, but have simply hoped that they could pull through somehow. Now that demands for trim are coming in faster than they can be satisfied

they are switching from one job to another all the time in order to keep the loudest howlers quiet and are getting nothing really done nor working at anything like their full normal capacity."

The contractor asked the engineer if he had been up to the mill and had seen these things. "No," said the engineer, "I have not, but I know how these things go; I have been raised in the manufacturing game, so to speak, and have learned a lot about how not to do things. If you go up to the mill that is what you will find if they let you ask questions and look into things at all."

The contractor went up to the mill and when he came back reported that upon going into the office the proprietor said, "I am mighty glad to see you and hope you will look around and see for yourself how hard we are trying to make shipments to you on time. The fact is that I can't get much of anything out of that factory. The work just dribbles through, in spite of the fact that the men seem to be busy all the time, and I can't make decent shipments nor make shipments on time. I wish you would go out and see for yourself how it is."

The contractor went out, met the superintendent, and asked him what was the matter. "Matter!" said the superintendent, "Matter! Why there is nothing else. We can't get anything done. The factory is chuck jam full of work, most of it half or less than half done. We no more than get fairly set and going on one job than the boss comes out with an ugly letter just received from a builder. He is all worked up and says 'we must drop everything else and get onto that work right away and get some of it into the cars.' All right, we change and get going; then the mail brings in a still uglier letter from another builder and the boss goes up in the air higher than ever. He comes out of the office waving the letter, and showing me the ugliest parts of it, wants to know why we 'must keep him in hot water all the time' and 'why we can't get something done.' I am getting fed up on that kind of thing and am thinking of getting into something else where I can take some satisfaction in being alive. Life is not worth living here as it is."

To get away from such mismanagement as that, and as far away from it as possible, is the object and effect of what has come to be called scientific management. In the latest development

of that science, every separate element of a contract or of a job would be put on a Gantt chart, showing graphically and at a glance just when each element should be started on its course through the factory, the date when it should be finished and its daily progress toward completion—not in figures to be pored over and laboriously compared, but graphically, by straight horizontal lines, revealing all the salient points about all the jobs and the relation between their progress and the flight of time. And as all elements of all the jobs are thus scheduled there is no interference of one job with another—the boss can always refer to these charts and know readily just when he can start work on a new contract. No job interferes with any other job; there is no trouble except by some misfortune; and every one about the place can work steadily and effectively.

When the Federated Engineering Societies were organized in Washington, Herbert Hoover, who was the first president of the organization, gave a dinner to the delegates representing the component societies. At that dinner I was surprised and delighted with Mr. Hoover's announcement that, in a recent conference with Samuel Gompers, Mr. Gompers had said that organized labor was ready to co-operate in extending scientific management in the industries of the country.

As perhaps a first step toward that end, Mr. Hoover, a little later, suggested that the engineers co-operate in finding out, as nearly as possible, what were the wastes in industry, the extent of them, the nature of them, the cause of them and thus, more or less necessarily, the remedy for them. This resulted in a lot of hard work and a very considerable expense for a number of engineers and finally, also, in a book, now grown famous here and abroad, known as "Waste in Industry."⁵ A part of the introduction follows:

In making the studies upon which this report is based and in preparing the report itself there has been no purpose or desire to place blame upon any individual, group or class. The wastes revealed are the results of methods, tactics, and relationships of long standing in industry, and the Committee has merely desired to indicate the main opportunities for eliminating waste and to show whose opportunity or responsibility it may be to adopt proper measures for such elimination.

⁵Federated American Engineering Societies Committee on Elimination of Waste in Industry, McGraw-Hill Publishing Co., New York, 1927.

This paragraph shows, I think, the spirit in which the work was carried on. All previous prejudices, impressions, opinions, accusations and re-criminations were entirely disregarded and, by conference, a method of study was developed which was designed to bring out actual pertinent facts concerning the conduct of industries; shortcomings which were the result of delays; needless expense and loss when compared with the practice that had already been attained in the industries studied; not, mind you, with perfection, for we all knew that we did not know perfection and that no archangels are to be found in our industries, either as employers or employees. We simply compared what was being done in a given case with the best that had been or was being done in the same industry elsewhere.

As most of you perhaps know, considerable indignation was manifested in certain quarters when the report was published and showed that, of the total causes of wastes in industry, deficient management was responsible for more than twice as much as labor was responsible for. Management was responsible for over fifty per cent and labor for less than twenty-five per cent of the total wastes. This indignation has largely subsided, however, as the report has been studied more and blindly assailed less, and it is now quite generally conceded that its conclusions rest upon a pretty solid foundation after all.

The fact is, however, that there was no intention to fix moral responsibility for waste but only to show such actual responsibility as could be based upon the undeniable fact that a given cause of waste was avoidable, removable or curable by management or by labor as the case might be.

I have referred to a recent study of wages of machinists fifty years ago compared with present day wages. In that connection let me say that I think a possible contributing cause of increased wages has been generally overlooked. At least I have seen no mention of it. And part of this cause is scientific management, by itself considered and without reference to any such working agreement as that between the Baltimore and Ohio Railroad and its shop men; for scientific management means, essentially, avoidance of wastes in industry.

Let us go back for a moment to the ditch diggers using hand shovels, where practically all

the outlay is for labor, and then compare ditch digging with a powerful machine, driven by an engine and cutting a trench somewhat as a circular saw goes through a log of soft wood; then the expense of digging is not mainly labor but is mainly for the machine, its operation, maintenance, insurance replacement when worn out, and so forth. Something analogous to that has been going on during the past fifty years in the machinery building industry particularly, and in all industries to a greater or less extent, so that in general I think it is true that wages have declined in proportion to the value of the product while other costs of manufacturing have relatively increased.

A recently completed special study by the U. S. Department of Labor shows that the output per man in automobile plants was twenty-one per cent greater in 1925 than it was in 1914; in the iron and steel industry forty-nine per cent greater and in the pulp and paper industry twenty-six per cent greater in the same period.

Scientific management, high-speed steel, automatic machine tools in place of hand operated ones, much better and more expensive shop buildings to pay for, maintain, heat, light and insure, and mass production where applicable, have all combined to increase the proportion of that part of manufacturing cost which is variously termed "overhead," "burden," or, as I prefer to call it, "operating cost."

I do not think interest on investment should be included as a part of manufacturing costs but certainly cost of power, insurance, supervision, clerical help, depreciation of values or equipment by wear and obsolescence, which mean eventual replacement, should all be included and these costs, by the introduction of better management methods, improved appliances and high-speed steel, have all been increased relatively to direct labor costs; while the cost of direct labor has, per contra, been relatively decreased. And these things are economically justified, of course, or they would be avoided, as in fact they are avoided by the timorous, the reactionaries and the incompetents.

I am convinced that herein lies a part, I cannot say how much, but certainly a part, of the reason for increased wages in machine shops and probably in other lines where similar advances have been made. Few employers will resist a tendency

toward higher wages quite so strongly when wages are a minor element of cost as they will when wages are a major element of cost. When a boy is using a speed lathe to make small screws and threading them with a die held in his hand, his wages, however small, are apt to be more than all other elements of cost in producing those screws. When the same screws are made much better in automatics, one man running say four of them, his wages, though high, are much less than the other costs of production and will not in the nature of things be so closely contested as they might be otherwise.

A word about mass production. The general public has been led, I suppose, to believe that Henry Ford invented it. As a matter of fact it was invented long before he was born and as an employer and manufacturer he has enough to his credit without that. In "The Jungle," written twenty-two years ago, Upton Sinclair describes highly developed mass production as he found it in the packing houses of Chicago at that time. But it was anything but scientific management, and the two things are not at all synonymous, though they may or may not be used together, depending upon circumstances.

Mass production could not be used, for instance, in railroad shop work but scientific management can be, and in fact can be used in very nearly every form and variety of manufacturing. Mass production would naturally be used in the manufacture of pins, for instance, and was so used in the early days of their production when the work was done almost, if not entirely, by hand, and moreover was minutely divided and specialized; but it could not be applied to the building of battle ships, while scientific management can be applied to either, and ought to be.

It would seem as though those who are engaged in the production of machinery should be the last

to obstruct its use in their own field. Their own living depends upon the use of labor saving machinery by other people and if those other people were to refuse to use it the machinist would disappear and so would civilization as we know it.

So long as man retains the power to reason and to think, improved methods of doing things will be devised. It is not the thinkers who prevent the workers from getting their share of the joint product of labor and capital; it is those who render no useful service whatever, either in mental or physical effort, and these are approximately ten per cent of the population who take every year thirteen billions of dollars in tribute collected from producers for the privilege of living upon and using land and natural resources which no man has created and the values of which arise solely out of the fact that man cannot live without them.

I am greatly encouraged by such things as are now being done, in the shops of the Baltimore and Ohio Railroad especially where the company and the men have united to eliminate waste and to promote their mutual interests. According to all reports that have come to my notice the agreement and the plan are working to the substantial satisfaction of both sides.

It is claimed and believed by some that the strike spirit, the riot spirit, bolshevism and what-not are infectious or contagious. Perhaps they are; but I believe on the other hand that right and fair dealing are also contagious and I venture to hope that they will prove in the long run to be more contagious than the opposite things. I can scarcely believe that the Baltimore and Ohio example will not be followed by other railroads and that a time is not coming when our wasteful, destructive and senseless contentions and bludgeon method of settling, or rather trying to settle, industrial matters will have disappeared and reasonableness will have been enthroned in their places.

Annual Meeting of the Taylor Society

December 8-10, 1927

Plans are already under way for what promises to be the most profitable meeting the Society has ever held

Financial Incentives¹

An Inseparable Part of the Task of Management

By ELLIOTT DUNLAP SMITH

Dennison Manufacturing Company and Harvard University

INDUCEMENT of effort is by no means exclusively a problem of *financial* incentives. Man has other mainsprings of action than the desire for pay. The problem of financial incentives is but a single and inseparable aspect of a larger problem and must never be considered as set apart from the general problem of management.

Moreover, financial incentives are not confined to variations in the manner of wage payment. Any measure which increases the effectiveness of pay as a stimulus to productive effort is a financial incentive. Yet, as all such measures must be related to some form of payment, it seems best to classify the subject on the basis of the principal wage forms.

Time Payments

The primary distinction between forms of wages lies between paying for the amount of time worked and paying for the amount of work done. This is equally a distinction between remote and immediate incentives. To pay for the amount of work done is to provide an immediate incentive to do as much work as possible. To pay by the month, week, day or hour is to provide no immediate financial incentive whatsoever. For, if the worker is paid in this way, how hard he works today does not determine how much he will be paid for today's work. Still, how hard he works today, and this week and this year, does affect what job he will hold in the future and how much he will be paid for that job. Time payment is an effective financial incentive in the long run.

With increasing prevalence when time rates are used all employees doing the same job are paid the same amount regardless of individual merit. One reason such flat payment is growing is because of the increase of interlocking crews where each worker

must keep pace with the others in a carefully timed sequence of operation. In such lock-steps the worker must produce neither more nor less than the standard amount. There is alike no chance to lag and none to spurt. The only incentive to effort desired is an incentive to keep in line—and this is provided by the flat rate backed by the power of discharge. Another reason for the increase in the flat time rate is collective bargaining. A flat rate is eminently suited to collective bargaining, for so long as any variation in payment is provided, there is no way of insuring where between the maximum and minimum the average level of payment will fall. Moreover, once a minimum rate is set by a bargain, even though it may not have been contracted for as a flat rate, since no variation downward is permissible, few variations upward are made. Whatever the reason for its use, a flat rate is an incentive to mediocrity—an incentive to attain mediocrity, but, because of the deep-seated human yearning for a "fair deal," also an incentive not to exceed it, which with the pressure of group conformity has considerable potency.

Because of the leveling effect of the flat time rate, where individual effort and attainment is desirable and where bargaining conditions do not interfere, graduated time rates are extensively used. Often this graduation has been accomplished by combining flat rates for each job with lines of promotion from job to job. Under such a system, while the bargaining advantages of flat rates are retained, there is a substantial financial inducement to do better than the average on the present job in order to be promoted to the higher pay and prestige of the next. A more effective form of financial incentive is brought about when there is also graduated pay for the individual job and the amount the workman receives depends upon production, quality, waste or other merits that it is desired to stimulate.

¹Paper presented before a meeting of the New York Metropolitan Section of the Taylor Society, in New York, April 14, 1927.

The effectiveness of any form of graduated time payments as an incentive to effort depends, more than on any other thing, upon the reliability with which the place of the employe in the wage scale is determined. If the employe feels that what pay he gets depends largely on how well he "stands in with the boss," the incentive will be one to propitiate the foreman rather than to do better work. It is in proportion to the confidence of the worker that the value of his work will be fairly reflected in the amount of his earnings, that a graduated time rate becomes effective as inducement to productive effort. Probably the most important steps in improving time payment as a financial incentive have thus been the clearer definition of the reasons for advancement, and the regularization of pay changes by employment department supervision and by accurate records of the employe's attainment. Production records have for years been widely employed, but recently the technique of rating has developed sufficiently so that ratings of other merits, such as quality, versatility or waste, have become important means of determining an employe's pay value. Such records are of value not merely as an aid to management in regulating pay justly, but also in making clear to the employe his own standing and the direct effect of his attainment upon his remuneration. For the power of the pay envelope as an incentive rests not only upon the justice of remuneration, but also upon the conviction of the employe that if he does more he will be paid more, and upon his knowledge of how he is doing.²

The importance of records and of making the employe aware of his standing and progress removes much of the significance of the distinction between financial and the so-called "non-financial" incentives. Rarely does either stand entirely alone. Always men are paid for their work and are thus under financial incentive. Even where flat rates are paid, the hope of promotion to some better job or some executive position, or of increased security of employment, usually gives to the worker a financial interest in the improvement of his standing. With flat rates, if records are employed, though they operate in part as financial incentives, their non-financial aspects predominate. With a properly de-

²The value of any form of time payment as an incentive does not apply with the same effect to girls as to men and older women. Because they expect to stay in industry but a short time, girls are less interested in promotion and in long run financial inducements than men.

termined and applied sliding scale of payment the non-financial and financial inducements blend, strengthening, not impairing, each other and giving to time rates a potent incentive power.

Payment for Work Done

An immediate financial incentive is provided when the amount which the employe receives each pay day depends directly upon the amount of work he has done. Before the advent of scientific management direct payment for results almost universally took the form of straight piece rates. The old piece rates were set either by the hunch of the shop foreman or by a bargain between the union and the company. They were consequently crude and not fairly adjusted to the amount of skill and effort required to make the particular product. The greatest defect in the old piece rate, however, was that the practice of rate cutting was commonly associated with it. Frequently when the employes, over a considerable period of time, worked hard for extra earnings and materially increased their pay, the management cut the rate and reduced their future earnings to "a fair day's pay" in spite of the extra effort. Thus, while the piece rate was an immediate incentive to increase output, the fear of rate cutting created a more powerful long-run, counter incentive to keep production down. Moreover, if any employe, heedless of his individual future, expended exceptional effort in order to increase his present earnings to the maximum, he soon felt the crushing force of social disapprobation against his "killing the rate." Even where the rates were set by collective bargaining, the employes learned that too high piece rate earnings were not desirable. To a large degree the rates which they were able to secure from their employers depended upon what the average weekly yield of those rates had been in the past. If weekly earnings under any piece rates were above the going wage in the community, the union had a hard task in bargaining for an increase or even retention of the rate. In all respects the piece rate had wasted its power through riotous cutting.

With the coming of scientific management the same forces that contributed so richly to the improvement of manual technique were applied to the improvement of wage technique and the restoring of the vitality of direct financial incentives. Conditions and methods were carefully studied and

standardized, not merely to make them as efficient as possible, but also to make them as stable as possible. The amount of output which an employe could give using standard methods under standard conditions was then determined as accurately as possible by time study. A rate thus "scientifically determined" was expected to stand the test of time and was promulgated with the guarantee that it would not be cut unless the method of manufacture was substantially changed. This rendering of the piece rate at once accurate and secure against cutting cured most of its former evils.

This primary development ushered in a host of lesser improvements and modifications. Variety began to appear in the manner in which the financial pressure was applied. The straight piece rate gave a fixed return per piece and varied neither to mitigate the hardship of the learner nor to stimulate the attainment of a set standard. The newer rates varied in a number of ways for a number of purposes. Taylor devised a differential piece rate that aimed to discourage all but the outstanding workers and to make the reward of outstanding ability strikingly worthwhile. He set a low rate of return per piece until a severe "task" had been accomplished in the given time, and after that point not only increased the rate on subsequent units produced within the standard time, but applied the higher rate retroactively over all that had been produced. If the employe fell short of the allotted task by no matter how narrow a margin, no bonus was forthcoming; if he accomplished it, all that he had done before acquired a new value that made the total increase great. Such a rate not only put a high premium upon exceptional ability and energy in the worker, but upon exceptional accuracy in setting the rate. If the task was set too high, the rate would discourage all comers; if it was set too low, the amounts carried home by the worker would soar. It was a courageous investment in scientific accuracy worthy of Taylor, but because of its harshness both upon the worker and management, it was hardly a lead that many would follow. At the other extreme was the tapering off of the piece payment with each additional unit of output, thus both reducing the risks of rate setting and the strength of the incentive to outstanding performance. Such rates, however, could be used where standardization and accurate time determination

had not been accomplished; but because of their crudity and weakness had many disadvantages and few advantages as compared to skillfully applied time payment differentials.

A more fruitful mitigation of the severity of the financial pressure of the straight piece rate is the combination in one form or another of time and piece payment. Because this reduces the amount of the employe's earnings that vary in proportion to his output, it reduces on the one hand the management risk of loss and on the other hand the employe's risk of hardship. While this is, of course, done at the expense of the potency of the immediate financial incentive, the presence of the time rate enables other values than production to be recognized. To the same extent that the variation of pay in proportion to output is diminished, the way is opened for rewarding quality, versatility or other values.

Just as the flat time rate favors mediocrity of output, the straight piece rate, which rewards production only, favors mediocrity of quality. While efforts in the form of special bonuses have been made to extend exact payment by results to cover quality and waste, the difficulty and expense of securing sufficiently accurate measurement of individual daily attainment in regard to these intangible values have usually proved prohibitive of such measures. In the combined time and piece payment the long-run recognition of quality and similar intangible values is combined effectively with the immediate incentive upon output.

An important advance in the technique of payment for work done is the statement of output in terms of standard time, instead of in terms of number of products or operations finished. Each job is given a definite standard number of minutes for its performance, and the employe paid so much per standard hour regardless of the actual time taken. The financial result to the employe is exactly the same as if the work was paid for by the piece, but the whole problem of calculating production is greatly simplified by having all jobs stated in terms of a common unit. Jobs of various sorts can thus be considered in a single computation of the standard times involved, the value of which in planning and work room control is self-evident. Likewise, all dealings in regard to piece rates are reduced to the determination of

a single factor. If the rate per standard hour is agreed upon, all the various piece rates that may exist—no matter how numerous—are thereby automatically adjusted to the agreed level.

The simplification brought about by the statement of output in terms of standard time has made possible a combination of graduated time payment with piece payment in such a way that the full effectiveness of each form of incentive is almost undiminished by combination with the other. A graduated time rate is used, but is not paid for the number of *chronological* hours actually worked; rather for the number of *standard time* hours of work that the employe completes. Under this plan the long run *rate* of payment is determined *wholly*, not merely partially, by the graduated time rate, while the immediate payment from day to day depends as directly upon the quantity of production turned out as if only piece rates were paid.

The most recent development of piece rates is the group rate. Its essential principle is the teaming of the employes engaged in making a common product into groups and the payment of each individual in the group in direct proportion to the group output. The group piece rate combines a social incentive with the direct financial incentive. Each employe works not for himself alone, but for his group as well. Upon him, if he lags, falls not only individual loss, but social disapprobation. In those groups where individual variation is not possible, the straight group piece rate, while being as well adapted to lock-step conformity as the flat time rate, provides an effective incentive to the members of the group, while keeping step, to quicken their pace. In those groups where individual attainment is desirable, it is customary to combine the group piece rate with graduated individual time rates, thus making it possible to recognize whatever individual qualities it is desired to stimulate. Moreover, different individuals within a group may be given different shares in the group total, based on the relative difficulty of their allotted tasks or their individual merit. Individual production records may even be kept and used as a basis on which to adjust from month to month, or quarter to quarter, the ratio that the individual receives out of the common earnings. Thus, in one way or another the group rate may be combined with recognition of the individual,

and if this is skillfully done, the various individual incentives are united with an immediate social one, with little loss to either.⁸

The greatest merit of the group rate is not the addition of social to individual financial pressure as a spur to individual effort. It is the transfer of employe interest and attention from individual attainment to co-operative output. Through the incentive of common interest, the employes where group rates have been installed have developed ways of co-operation that have brought about economies and improvements and have led to increases in output as surprising to themselves as unforeseen by the management. This last step in the development of financial incentives indicates not only how effectively the financial motive may be combined with the other powerful human motives in bringing about effort, but also how the financial motive may be utilized to arouse and direct upon the job such powerful non-financial motives as the desire for social approbation.

Which Is Best?

These roughly are the major types of financial incentives in use today. The number of possible—nay, almost of actual—minor variations are endless. It is impossible to say which is best. None is universally superior. As far as I know, none is wholly satisfactory anywhere. There is always room for improvement. Certainly the mere fact that some form of financial incentive works in one shop is little evidence that it will work in another. So much depends on shop conditions. Because of the nature of the product, of the methods, of the management, of the employes, even of the community, what suits one situation well and proves eminently successful there will fail in another. Moreover, figures of output or costs "before and after taking" are not accurate evidence of the value of an incentive, even under the conditions where it is applied. Too many other variables exist: too many other things are likely to have changed while the incentive was being installed and operated. Out of the studies incident to installing any form of direct financial incentive, for example, striking improvements in methods, in conditions and controls are likely to have resulted.

⁸Incidentally, group payment permits of the elimination of much of the handling and inspection between operations which is necessary when employes work and are paid individually.

As to the results of an incentive, it is then difficult to dogmatize.

Even within one factory varying conditions may make time rates desirable in one place, time and piece rates in another, group rates in a third, and Taylor differentials in a fourth. Financial incentives have such a variety of forms and influences and are so affected by conditions that it is rarely a problem of introducing a form ready made. Instead the conditions, the product, the equipment, the employee and the management must all be carefully studied, and out of the multitude of possible factors which might cause the pay envelope to influence effort a plan of incentives gradually evolved which, as it develops, is moulded to conform to the contours of the shop. Such an evolution takes time, if only for its various developments to season. Such a plan is always "in process." Certainly in a world where perfection is so unattainable and changes so unforeseeable, a manager courts trouble if he accepts a plan of human motivation ready made, and then because he has done so, assumes that it is final and requires no further change.

Some General Principles

While no form of financial incentive can be unqualifiedly endorsed or condemned, certain principles apply to the problem generally.

1. *The effectiveness of any form of financial incentive depends largely upon the degree of reliability with which the reward varies in proportion to the value rendered.* Consequently, when production records are kept with the same precision as if they were to be the basis of piece payment, and the time wage is frankly determined on the basis of these records, it makes astonishingly little difference whether the worker is paid by the piece or by the hour. In the only instance which has come to my attention where this has been done to the extent that would have made the payment of piece rates possible, and which thus gave a fair basis of comparison, the jump ahead in production and the insistence upon proper working conditions, that are so characteristic of the introduction of piece rates, occurred to as great an extent as in other departments where piece payment was actually installed. Critical forces creating financial inducement are the reliability and precision of the records, the faithfulness with

which they are followed as a basis of payment, and the degree to which they are understood by the employees.

2. *The introduction of precise direct-reward incentives must follow, not precede precise managerial control.* This in a sense is a corollary of my first principle. If the shop conditions are not standardized so that the amount of effort per unit of output is roughly constant, if the nature of the item is such that the amount of productive effort put out in making it is not roughly commensurable, to introduce production payment is to base a variable reward upon conditions beyond the employee's control. This on the one hand will lead to constant complaints and exceptions, and on the other hand, to dissatisfaction and discouragement. No step in the introduction of direct payment by results is more important than discovering as nearly as possible the ideal "one-best-way," and then seeing that conditions are maintained at that standard.

Perhaps the most serious evil of introducing piece payment before a sufficiently close approximation to the "one-best-way" ideal has been attained is the dilemma of having either to pay excessive rates or to cut rates. If the setting of rates is followed by a rapid though gradual improvement of loosely standardized conditions, earnings will rise to disproportionate figures without equivalent increase in effort by the workers, and though the improvement of conditions may have involved substantial expense, no positive change in method will be at hand to point to as a basis of setting a new rate. Even when great care is taken at the start, in time improvements in method, material and equipment will occur, if the company is progressive, and yet they will often occur so gradually that it is almost impossible at any point to say that a substantial change in method justifying a change in rate has been made. This problem of adjusting rates to gradual improvement of conditions is one of the most baffling problems of handling financial incentives. So far as I can discover, no satisfactory answer to it has been found. The problem is serious at best—if rates have been hastily installed without first standardizing conditions as far as possible, it is ruinous.

3. *In introducing financial incentives one should always count the cost.* Often conditions are such

that the exact knowledge of daily output necessary for direct payment by results cannot be obtained without disproportionate expense. This has been most conspicuously true of the expense of inspecting after each operation and of figuring quality ratings in those few places where direct quality incentives have been attempted. There are many places where the difficulty or the expense of standardization and of exact measurement of results are so great that time payments in one form or another are far better than any form of piece payment.

4. *In considering the effect of any financial incentive, its effect on the whole problem of production, not just upon output, must be considered.* To an embarrassing degree an incentive on one element of an employee's value tends to a slighting of all others. If we put a variable rate on output only, we cannot, as has been stated, expect the worker to maintain an equivalent interest in improving quality. As the differences between group and individual rates indicate, if we pay for individual productivity only, we must not be surprised if the individual fails to embrace opportunities for co-operative action. No form of immediate financial incentive adjusts the pressure of financial interest uniformly.

5. *When all is said and done, much of the best value of an employee is too intangible for reward and, therefore, for stimulation by any form of financial incentive, even the time rate.* Men are too complex and too individual ever to be reduced to slot machines whose entire effort can be compelled by the insertion of a coin. Valuable as financial incentives are, their limitations must not be overlooked. Primary among these is the fact that they do not reach the invaluable voluntary co-operation and effort which each workman can, but cannot be forced to, give.

Moreover, the financial desire is not the only great force in man. In considering his conduct, his whole range of fundamental desires must be recognized.

His desires for self-respect, for respect of others, for self-expression and for justice are also powerful forces within him. His fears of social pressure, of loss of job or prestige, and of injury or unemployment are likewise powerful. These are fundamental factors that in any shop must be considered. How the working out of the financial incentive affects these forces is always a pertinent question.

A financial incentive is never the whole story. We do not introduce financial incentives in a vacuo but in a condition—we do not apply them to one desire but to the whole man.

Conclusion

Since whatever makes the receipt of pay operate to stimulate greater effort likewise operates as a financial incentive, the possibilities for variety in the composition of a plan of financial incentives are almost unlimited. Moreover, what renders any program effective in inducing effort is its relation to the needs and conditions of the particular work room and workers. Consequently, success in developing financial incentives rarely consists so much in transplanting a fully developed plan as in evolving out of the sweep of possibilities a program of incentives that has been developed in full understanding of the conditions of the particular work room. Besides, the fullest success in developing financial incentives involves bringing about the development of shop conditions and of the work room management so that they interweave with the incentives and together make a consistent and unified whole. Financial incentives cannot be successfully considered as a thing apart from management. They are an integral element in management and with it form an inseparable whole.

Since financial incentives cover but certain aspects of the employee's value and appeal to only certain sides of his nature, other aspects of his environment and of his character influence his conduct. And yet these other values and other sides of his nature are in turn affected by the character of the financial appeal. From this aspect also financial incentives are an inseparable part of the task of management.

The task of management still remains. Financial incentives are in no sense a substitute for management. Instead, the more precise and direct the financial incentive employed, the more highly developed must the management be to cope with it. They make management more difficult, as do most advances in managerial technique, but they also make a higher degree of management possible. If they are suited to conditions, if they are made part of the general structure of control, if they are employed by an understanding management that realizes *their* nature and *its* responsibility, and if they are recognized as only one element among the forces that influence employee effort, they can

join with the other forces inducing effort and bring out response that could be secured in no other way. If they are properly employed, financial incentives are not a means of reducing man to a mercenary mechanism. If they are properly employed the line between financial and non-financial incentives fades. The problem becomes one of employing the financial appeal, together with all that causes man to strive for attainment, to bring employes and management alike to join forces vigorously in a common understanding.

Discussion

Robert B. Wolf.* The title of Mr. Smith's paper, "Financial Incentives—An Inseparable Part of Management," implies that he believes them to be necessary.

My own experiences prevent my agreeing with him. Furthermore, I believe I can show from his own words that the difficulties encountered from their use are so great as to make them not only unnecessary, but also undesirable.

Mr. Smith defines financial incentives as "any measure which increases the effectiveness of pay as a stimulus to productive effort," and he further elaborates this in his first general principle by stating that "the effectiveness of any form of financial incentive depends largely upon the degree of reliability with which the reward varies in proportion to the value rendered."

While he endeavors to show that straight day rates, under certain conditions, act as financial incentives, it is clear that he does not really regard them as such, for he states quite definitely that "a flat rate is an incentive to attain mediocrity," and that "to pay by the month, week, day or hour is to provide no immediate financial incentive whatsoever." In my discussion, therefore, I am going to proceed upon the assumption that Mr. Smith will accept the following definition:

A financial incentive is a stimulus deliberately applied from without, upon the individual or group, for the purpose of increasing the amount of work done, by arousing the acquisitive instincts of the workers. It is so applied that the worker is always conscious that the amount of pay he receives is the immediate and direct result of the amount of work he does.

This definition removes methods of payment for straight clock time from the category of financial incentives.

Let me state my own position at the outset: I believe I have a right to stimulate my own acquisitive instincts, if I choose to do so, but I do not believe it is right for someone else to stimulate them for me. Providing an industrial environment where the worker can be progressively promoted from a lower to a higher paying job is quite a different thing from having him constantly stimulated in each job by dangling a material reward before his eyes. All forms of financial incentives exert what Mr. Smith refers to as "financial pressure" upon the workman. He calls attention to the coercive speeding up which resulted from the use of differential piece rates, which have been largely abandoned on account of the hardship to the learner, for they were "aimed to discourage all but the outstanding workers." The practice of setting severe tasks, "because of its harshness both upon the worker and the management," was abandoned; first, as Mr. Smith indicates, because it was discovered that they could not reach the invaluable, voluntary, co-operative efforts of the workers, and, second, I believe, because the accumulative resistance of the workers to coercive measures loaded upon the management an ever increasing burden to do most of the thinking. Management, rather than the individual workers, had to determine the most effective way to cope with each particular situation, something quite impossible of attainment without robbing the worker of his normal desire to express individual initiative. It is probably this resistance of the workers to having their thinking done for them that caused Taylor to encounter so much "soldiering" on the job.

I am inclined to think that Mr. Smith has been so preoccupied with the task of job and rate setting that he has not had a chance to get sufficiently close to the worker to find out how unnecessary and undesirable it is to apply individual financial pressure. I am not, therefore, surprised that he finds "no step in the introduction of direct payment by results is more important than discovering as nearly as possible the ideal 'one-best-way' and then seeing that conditions are maintained at that standard." This sentence explains why management has loaded such a severe task upon itself,

*President Pulp Bleaching Corporation, New York.

for to attempt to discover the one best way for each operation entails enormous expense. So great is this expense that management is bound to resist any effort upon the part of the workers to depart from the predetermined standards.

"After several years' experience as a manager, I have come to the conclusion that no matter how skilfully the management determines the one best way to perform an operation, it ceases to be the one best way if the workmen do not want to do it that way." Management, therefore, must take upon itself the severe and costly task of seeing that conditions are maintained at the expensively determined standards. This requires an extensive supervisory force, which accumulatively increases the number of non-productive workers. The effect, moreover, of doing what Mr. Smith says is necessary to properly establish "payment by results" is to set up an accumulative overhead burden, which ultimately more than offsets any temporary increase which may result from stimulating the workers' acquisitive instincts. If this can be demonstrated to be the case the use of financial incentives is economically unsound.

I know a genuine, scientific spirit of searching for truth, no matter what it costs, dominates this Society, so I am going to quote the English psychologist, Charles S. Meyer, Director of the National Institute of Industrial Psychology:⁶

Undoubtedly, the workers' intuitive opposition can be shown to have a sound psychological basis. For the mental and bodily differences between workers are such that it is impossible to train or to expect each worker to perform the same operations in identically the same way. In all sport and in all form of art there are different styles, all equally good, some suited to one man, others to others. So it must be in regard to industrial work. There is no "one best way." What a psychologist and physiologist insist is that there are undoubtedly bad styles and bad habits of work which the worker needs to be taught to avoid and that it is an egregious error to force all workers into a common mould, regardless of the individual differences between them. The notion of "the one best way" is not only impossible strictly to carry out in practice, because no two persons can be trained to precisely the same features of rhythm and movement, but it may also be harmful to the worker because it tends to discourage initiative.

⁶Quoted from a paper delivered by the author before the Taylor Society, December, 1916, and published in the *Bulletin of the Taylor Society*, March, 1917.

⁷Charles S. Meyers, "Industrial Psychology" (The People's Institute Publishing Company, Incorporated, New York), pp. 27-28, 83.

How widely removed is this psychological attitude from that of the so-called "efficiency experts" whose engineering training and consequently mechanistic attitude lead them rather to time study the worker as if he were a machine, to set hourly or daily tasks which an efficient worker should be expected to perform, and to devise elaborate systems of payment which, in their mistaken belief that prescribed tasks and preferred bonuses are the main incentives to production, will induce the worker to give his best.

The investigations of the Institute, according to Mr. Meyers, covering a very wide range of British industrial life, caused them to conclude that:

If only the mental atmosphere in a factory be right, the workers will set their own standard of output, and as the majority of mankind, when placed under just conditions, is honest and honourable that standard will prove in the long run to be the most satisfactory.

Perhaps the increase in flat rates due to the pressure of collective bargaining, noted by Mr. Smith, results from the instinctive feeling that each worker has a creative contribution to make to industry, and that they propose, through their collective bargaining powers, to demand opportunity to make this contribution.

At any rate, at the Conference on the Elimination of Waste, held at the Philadelphia Labor College last April, convincing evidence was submitted that flat rates do not tend toward mediocrity when management co-operates with workers to provide working conditions which stimulate thinking. At this meeting many instances were given where increased production, better quality and lower costs were obtained by a co-operative development of working standards; and one could not help being impressed by the fact that many of the management difficulties, which Mr. Smith points out inevitably follow the introduction of financial incentives, could be eliminated by abandoning them entirely.

The better results which have been obtained where group piece rates and bonuses have been introduced have, in my judgment, not been because the financial incentives have been combined with social incentives, but because the normal social incentives have been given a chance to operate more naturally, as the potency of the immediate financial incentive was reduced. This Mr. Smith recognizes, for he states that "the greatest merit of the group rate is not the addition of social to individual financial pressure as a spur to indus-

trial effort; it is the transfer of the employees' interest and attention from individual attainment to co-operative output." He goes on to say, however, that "the last step in the development of financial incentives indicates not only how effectively a financial motive may be combined with the other powerful human motives to bring about effort, but also how the financial motive may be utilized to arouse and direct upon the job such powerful non-financial motives as the desire for social approbation." I cannot agree with his conclusion that the co-operative effect is brought about by the application of the financial motive, and I fear he is doing what he cautions against doing, namely, "accepting a plan of human motivation ready made."

Frankly, I believe the troubles, which Mr. Smith has so well described as resulting from the use of financial incentives, can be traced to the acceptance of a philosophy of management which puts the acquisitive as one of the primary human motives, whereas it is, in my judgment, decidedly secondary, and, strictly speaking, not human but animal.

Dr. Henry Fairfield Osborn, President of the American Museum of Natural History and one of the greatest authorities on the evolution of man, in an address delivered recently before the Convention of the American Philosophical Society, stated that:

the ape man theory should be banished from our speculations and from our literature, not on sentimental grounds, but on purely scientific grounds. . . . Of all the incomprehensible things in the universe, man stands in the front rank, and of all incomprehensible things in man the supreme difficulty centers in the human brain, intelligence, memory, aspirations, powers of discovery, research and the conquest of obstacles.

When a great anthropologist will so clearly differentiate between the animal and man have we not a right to assume the strictly human aspirations to be dominant? Surely the science of management will make a lasting contribution to the welfare of the human race if it succeeds in developing a technique of stimulating powers of discovery, research and desire to conquer obstacles. At any rate, it has been my experience from continued, intimate contacts with many workers that they respond much more readily to an environment which stimulates their creative powers than to an environment which merely stimulates

their acquisitive instincts, and I have never been able to obtain concerted group action while at the same time stimulating selfishness.

Mr. Smith, I believe, recognizes that the two ideas—the acquisitive and the co-operative—are in opposition, but I cannot follow him when he says that "if they are properly employed the line between financial and non-financial incentives fades." I do not see how we are ever going to reconcile the spiritual views that we, as Christians, are supposed to hold, with a type of industrialism that is especially designed to stimulate getting rather than giving. If the employer has, as his motivating principle, a desire to see that the employe is given not only opportunity to gain knowledge and skill, and so creative power, but also that he is given to the full the material results of his efforts, he will really be practicing Christianity and at the same time doing business in a way which is profitable to himself, his employes and his customers.

In a discussion of this kind there is not time for me to give actual illustrations from my own experiences, which have caused me to arrive at the opinions I have expressed. By permission, however, I am, in a footnote, giving the names of Taylor Society Bulletins and others which relate in considerable detail how results were obtained entirely without the use of financial incentives.¹

Because the Taylor Society gave me my first opportunity to bring this point of view before a management group, I consider it an obligation on my part to keep hammering away at this subject, for I believe the open minded attitude of this group will (perhaps in co-operation with organized labor) develop the greatly needed science of human nature.

My concluding argument against the use of financial incentives is made up entirely of extracts taken from Mr. Smith's paper, and I submit that he has made out an excellent case.

¹*Bulletin of the Taylor Society*, August, 1915, "Individuality in Industry"; October, 1916, discussion of A. B. Greene's "Scientific Methods Applied to the Beating of Paper Stock"; March, 1917, "Control and Consent"; June, 1925, discussion of Geoffrey C. Brown's "Scientific Management and Organized Labor Today."

Mechanical Engineering, December, 1918, "Non-Financial Incentives."

System, January and February, 1919, "Making Men Like Their Jobs."

"The Creative Workman," published May 16, 1918, by the Technical Association of the Pulp and Paper Industry.

"The old piece rates were . . . crude . . . The greatest defect . . . was the practice of rate cutting . . . Frequently when the employees . . . worked hard . . . and . . . increased their pay, the management cut the rate and reduced their future earnings to a 'fair day's pay.' . . . Moreover, if any employee . . . expended exceptional effort . . . he soon felt the crushing force of social disapprobation against his 'killing the rate.' . . . If weekly earnings under any piece rates were above the going wage in the community, the union had a hard task in bargaining for an increase or even retention of the rate. In all respects the piece rate had wasted its power through riotous cutting.

"With the coming of scientific management . . . conditions and methods were . . . standardized . . . to make them as stable as possible. The amount of output . . . was then determined . . . by time study. A rate thus scientifically determined was expected to stand the test of time. . . .

"Taylor devised a differential piece rate that aimed to discourage all but outstanding workers . . . He set a low rate of return per piece until a severe 'task' had been accomplished . . . and after that point not only increased the rate on subsequent units produced within the standard time, but applied the higher rate retroactively over all that had been produced. If the employee fell short of the allotted task by no matter how narrow a margin, no bonus was forthcoming . . . because of its harshness both upon the worker and management, it was hardly a lead that many would follow.

" . . . straight piece rate which rewards production only favors mediocrity of quality.

"The most recent development of piece rates is the group rate. Its essential principle is the teaming of the employees engaged in making a common product into groups and the payment of each individual in the group in direct proportion to the group output. The group piece rate combines a social incentive with the direct financial incentive. Each employee works not for himself alone, but for his group as well. Upon him, if he lags, falls not only individual loss but social disapprobation.

"These roughly are the major types of financial incentives in use today. The number of possible—nay, almost of actual—minor variations are end-

less As far as I know, none is wholly satisfactory anywhere.

"When production records are kept . . . and the time wage is frankly determined on the basis of these records, it makes astonishingly little difference whether the worker is paid by the piece or by the hour. . . .

"No step in the introduction of direct payment by results is more important than discovering as nearly as possible the ideal 'one-best-way' and then seeing that conditions are maintained at that standard.

"Perhaps the most serious evil of introducing piece payment before a sufficiently close approximation of the 'one-best-way' has been attained is the dilemma of having either to pay excessive rates or to cut rates. . . . Even when great care is taken . . . improvements in method, material, equipment will occur . . . so gradually that it is . . . impossible . . . to say that a substantial change in method justifying a change in rate has been made. This problem of adjusting rates to gradual improvement of conditions is one of the most baffling problems of handling financial incentives. So far as I can discover, no satisfactory answer to it has been found. The problem is serious at best—if rates have been hastily installed without first standardizing conditions as far as possible, it is ruinous. . . .

"Often conditions are such that the exact knowledge of daily output necessary for direct payment by results cannot be obtained without disproportionate expense. This has been most conspicuously true of the expense of inspecting after each operation There are many places where the difficulty or the expense of standardization and of exact measurement of results are so great that time payments in one form or another are far better than any form of piece payment.

"In considering the effect of any financial incentive, its effect on the whole problem of production, not just upon output, must be considered. To an embarrassing degree an incentive on one element of an employee's value tends to a slighting of all others. . . .

"When all is said and done, much of the best value of an employee is too intangible for reward and, therefore, for stimulation by any form of financial incentives . . . their limitations must not be overlooked. Primary among these is the fact

that they do not reach the invaluable voluntary co-operation and effort which each workman can, but cannot be forced to, give. . . .

"How the working out of the financial incentive affects these forces is always a pertinent question. . . .

"The more precise and direct the financial incentive employed, the more highly developed must the management be to cope with it. They make management more difficult."

Geoffrey C. Brown.^{*} I wish, in the first place, to congratulate Mr. Smith on his interesting address. The subject of "Financial Incentives in Industry" is a timely one because it presents an aspect of scientific management which I am very sure has been dealt with, thus far, somewhat inadequately.

I believe with Mr. Wolf, that the popular conception of what constitutes an incentive or stimulus to human productivity has been limited and beclouded, hitherto, by the idea that it involves, more or less exclusively, an individual financial reward given for the attainment of a specified output standard. I share enthusiastically, moreover, in Mr. Wolf's conviction that the importance of the acquisitive instinct as an exclusive medium through which to stimulate workers' productivity, has been in the past, and still is being, enormously exaggerated.

The majority of men, I believe, are spurred to productive activity far more by the fact that they find work inherently *interesting* than by the prospect of a bonus to be reaped through its performance. An adequate wage return of course is indispensable. As society now functions the wage signifies the worker's subsistence. It should represent, therefore, as high a wage standard as the character of the work and efficient management will admit. But it should, I believe, be taken for granted. The incentive, if it is to have a sound basis, must be provided through a knowledge of what makes various kinds of work interesting to various kinds of men. Any incentive method that has a general foundation other than this one of inherent interest, I am very sure, is superficial and inadequate.

If men are incited to their best productivity by the fact that they find work interesting, it is of the utmost importance to know where lie the springs of interest. From the bewildering array of ingenious wage incentive scales that captivated

the souls of our industrial engineers during the first two decades of the century, one would be led to believe that the most important stimulus was a bonus in the worker's pay envelope. I am convinced, however, that this is not the case. Work becomes interesting to the individual in proportion to the opportunity that it provides for the play of initiative and the attainment of self-expression in its performance. *If no such opportunity is afforded* the worker may be coerced into a semblance of interest through the prospect of an individual bonus, or through fear of dismissal or loss of wages; but the stimulus and the response are both artificial, the worker throughout is under a form of spiritual duress, and will not, I am sure, long maintain a high level either of productive attainment or personal satisfaction.

It has long been my conviction that proper incentive methods cannot be developed until society has evolved something more satisfactory than the somewhat opportunistic methods of vocational guidance that still prevail throughout industry. The *fitness* of the individual for the work is an overwhelming condition of his interest, and hence of his productivity. Mr. Smith has mentioned that the whole range of the worker's fundamental desires should be considered. First of all, then, adequate means should somehow be provided for guiding him toward the work for which he is most suited and feels a preference. This is something that continues largely outside any adequate range of control. The worker still drifts about taking what he can find, and under economic stress, frequently finds and spends the balance of his life at the wrong kind of work. One of the major problems of waste still confronting us is this vast futility of misdirected human effort, the problem, in brief, of the square peg in the round hole. I do not agree with a statement to the effect that men "are not square pegs or round pegs to be fitted into square holes or round holes as is frequently stated," which occurs in a widely recognized book on management. I believe, on the contrary, that men *are* pegs of greatly varying shape—square, round, pentagonal, hexagonal, etc.—and that they must fit into holes that have a sufficient degree of conformity. I am personally acquainted with a number of badly fitting pegs. I know that they are unhappy and I strongly suspect that they

^{*}Consulting Engineer, East Orange, N. J.

^{*}Richard Lansburgh, "Industrial Management," pg. 43.

are not highly productive. With potential mechanics working as salesmen, artists working as mechanics, inventors piling pig iron and so forth, the highest and best productivity cannot be obtained by any form of incentive. No man can develop a genuine interest in work for which he is congenitally unsuited.

Assuming, however, some degree of fitness for the work, on the part of the worker, the most effective way of arousing his interest and encouraging his best effort is by giving him the utmost opportunity to share in the creative development of his job. Make him feel without end that he is subjective to the work that he is doing. See that he has full opportunity to study his own job and suggest ways in which it may be improved. Treat his suggestions with respect, see that good ones, if available, are acted upon and that they receive quick and cordial recognition. Provide him, as Mr. Wolf has long urged, with records showing the quality, quantity and cost of his work. Assist him in every conceivable technical way, but make him feel that you are just *assisting* him—removing obstacles, as it were, from his path—and that the job is really his. Pay him the highest general wages compatible with the character of his work. Surround him with security in the shape of safe and sanitary working conditions. Provide adequate illumination and a pleasant working environment. Relieve his mind, as far as possible, of the obsessing fear of unemployment. Then watch your productivity curve go up and your cost curve go down.

The best way that I know of giving the worker an opportunity to share in the creative side of his job is to provide him with access to the deliberations of a joint job analysis committee, the latter properly representative of both workers and management. As I have described the composition and functioning of such a committee in my paper, "Workers' Participation in Job Study," on page 415 of this issue of the BULLETIN, it is unnecessary to dwell further on it here.

The workers, needless to say, are entitled to and should receive a fair proportion of any savings that follow the adoption of their suggestions. This, I am sure, may be accomplished best by returning to them a fair allotment in the shape of increased general or real wages for the entire group. Just what will constitute a group must be decided by conditions peculiar to the shop or to the industry.

Possibly the group will comprise all the workers in a particular shop; perhaps, on the other hand, it will include all those engaged in the same type of work. In any event, the best way of distributing the wage increase is to the men as a whole. In this way general wages are increased, and group solidarity among the workers encouraged, as I believe it should be. The payment of an individual bonus introduces the separatist tendency of every man for himself and the devil take the hindmost, which is not, I believe, conducive to the best interests of the management, the men, or the shop as a whole.

A highly interesting description of most of these methods in successful operation appeared in the March issue of the *American Federationist*.¹⁰ In the repair shops of the Canadian National Railway at Stratford, Leaside, Montreal and elsewhere, the joint union-management committees entirely abolished, in 1926, the old Grand Trunk piece work and bonus systems that had been in use for many years. In January of this year, as a result of many thousands of dollars saved through workers' suggestions, a general increase in the shopmen's wages became effective and the higher rate now prevails. The author mentions particularly that a similar increase could have been obtained, under former conditions, only through strike action. The achievements of the joint union-management committees in waste elimination, as described in this article, are a revelation of what may be accomplished when co-operative group interest is substituted for the individualistic isolation of former incentive plans.

In sharp contrast to the methods and results just described, were those of a manufacturing concern in Montreal for whom I worked as a production engineer just prior to, and during the early part of, the war period. This plant, normally engaged in the manufacture of electrical conductors, had gone patriotically into war work, installing all equipment necessary to the manufacture of eighteen pounder shrapnel and high explosive shells. The factory superintendent, a little earlier, had caught the "efficiency" fever, then prevalent, but had experienced difficulty in applying his new ideas because the normal product was manufactured in small job lots, with little similarity between suc-

¹⁰Joseph Corbett, "Union-Management Cooperation on the Canadian National Railway," *American Federationist*, March, 1927, pg. 311.

cessive orders. The new shell shop, however, seemed to offer a golden opportunity to demonstrate "efficiency" under very favorable conditions. The concern had secured from the Canadian Department of Militia and Defense two contracts each calling for a great number of shell bodies. Time study men were sent into the shell shop right at the start, and all operations from rough turning to final inspection were carefully observed and placed on a bonus basis. During the study no suggestions were sought from the workers and no form of shop committee through which they might have participated in the development of their jobs was in existence. Regular procedure consisted of time studying the operation, bringing the observation sheet to the planning office, setting a rate, preparing an instruction card, and sending the latter to the department foreman who used it in training the workers. Soon the shell shop was a bee hive, every operator striving to the uttermost to earn a big bonus. This lasted, if I remember correctly, for about two months. Then the original crowd of workers began to grow tired and lose interest. A few came in drunk, spoiled material and were discharged. Others left voluntarily, the bonus evidently losing its incentive value as far as they were concerned. After the initial spurt, new faces were constantly at the machines. I remember a conversation that I had with one of the workers who had been on the shell job from its inception, and was quitting after about a year's service. This man was a French Canadian called Senneville, and he had succeeded through the superiority of his working "style"—an individual quality, by the way.—in elevating the prosaic job of painting shell bodies to something approaching a fine art. His operation consisted of applying two coats of paint to the outside of the machined shell, and he had made himself so expert that he invariably earned seventy-five and often, I think, one hundred dollars a week. The management, incidentally, after experimenting with other operators, was glad to have him do so. I asked him why he was leaving. He replied that he had saved up enough to buy a little farm of a few acres, just outside Montreal, and that in future he would grow melons instead of painting shells. I asked him why he preferred farm work to earning one hundred dollars a week in a factory. "I'll be my own boss," he replied. "I'm fed up with this slavery. I only stayed

because I knew there was a chance to earn a quick stake and make a get-away." I have always remembered that reply. The man was willing to endure, temporarily, a factory job with earnings so high that his fellow workers regarded him with respectful awe only because it would facilitate his ultimate escape to a few acres of rocky ground that he well knew would yield him little more than a bare living. "I'll be my own boss," meant simply that his melon patch would provide freedom, and an opportunity for initiative, which he was not getting at the highly paid shell job. As a rule, I dislike stories with morals—that is, when they are serious—but the moral here is inescapable. Industry must give to the worker an adequate share of the opportunities both of the shell job and the melon patch. A wage incentive will not do this. As Mr. Smith has observed with great truth, "The whole range of the worker's fundamental desires must be considered."

An encouraging sign of the times, it seems to me, is the fact that there is decided evidence of an awakening throughout industry to the inadequacy of conventional wage incentives. Dr. Watson notes this development as follows:¹¹ "A good many business houses admit that their devices for offering added stimulation produce only a temporary increase in output." I am quite aware of the fact that the individual wage incentive still is widely used, and that it prevails often where the workers are well organized. The price lists in the needle trades, the hatting industry, the textile industry and the boot and shoe industry are so based. But I believe that the pendulum is swinging quite definitely away from individual piece work and bonus rates, and in the direction of more comprehensive group co-operative methods, and I think that it is only a matter of time until industry as a whole will have adopted this more natural, social and democratic way of encouraging the worker to his best productive effort.

Industry has not, thus far, half developed the possibilities of one very important spur to human activity. This is the incentive of *honor*. With such historical precedents as the Greek athletes and their laurels, or the sacrifices of the North American Indians to become "Braves," the honor incentive would seem to merit more emphasis. An interesting example of the stimulating value of this incen-

¹¹John B. Watson, "Psychology," pp. 410-411.

tive occurred in United States ship building activities during the recent war. Most of you, doubtless, recall the manner in which individual riveting records bounded up as soon as newspapers throughout the country began broadcasting the various scores. I believe that by publishing the successful suggestions and exceptional outputs of workers in a shop, an improvement both in morale and productivity must logically follow; *provided that this is done at the instance of the workers themselves through their representative shop committees*. If high achievement in any line of activity is recognized as a pathway to honor, there are few human participants who will not strive for such attainment. This is a legitimate form of incentive appeal, because it awakens the impulse to honorable achievement for its own sake, which I am sure slumbers in most men.

It is often claimed that certain types of work are monotonous in the extreme, inherently uninteresting, and that the only possible stimulus to the worker engaged in such employment is the prospect of relatively high earnings. My answer is that industry has largely neglected, thus far, the important problem of making work interesting. Attention has focussed on increasing unit output and reducing unit cost, without reckoning the fact that the *subjective* interest of the worker is an essential condition of any genuine or permanent progress in these directions. I believe that there are few kinds of work that cannot be made interesting to the worker. With such expedients as frequent rest periods or, as I have heard suggested, teaching the operator of monotonous work a second somewhat different operation so that he can alternate from one operation to the other; and with the representative sort of shop organization that I have emphasized, I am sure that an atmosphere of interest can be developed around most of this so-called uninteresting work.

The bonus incentive stimulates only a part of the worker's mental "surface," and I do not think that it is the best or most effective part. Also, if human beings actually possess any such instinctive pattern as that of acquisitiveness, which seems to be debatable,¹² its manner of influencing performance must be both artificial and indirect. Psychologists tell us that *curiosity, constructiveness* and *imitative-*

ness are all included in the category of human instincts clamoring, presumably, for expression. These might, I think, be regarded as creative and constructive instincts and more legitimate media for incentive appeal, for by their direct play men learn and achieve.

"Subjective volition . . . it is," said Hegel long ago, "that sets men in activity; men will not interest themselves for anything unless they find their individuality gratified by its attainment . . ." Mr. Smith has emphasized the fact that no incentive methods thus far devised have proven truly satisfactory, I am convinced that they will continue unsatisfactory until they have as their foundation a recognition of the fact that the real incentive to productivity is the worker's spontaneous interest in his work. This sort of interest is little influenced by the prospect of a bonus. It springs rather from the worker's inherent fitness for a particular kind of work, and from the opportunity for creative self-expression that the work affords. Artists, writers, inventors, mechanics, musicians, from time immemorial, have starved in garrets rather than forsake their creative opportunity. A means of subsistence was highly important in all such cases, but it was casual and in the nature of a right; something, as I have mentioned, to be taken for granted. I believe this to be the proper attitude toward wage payments. Psychology must tell us more than it has done about the nature of the stimuli that control human interest. Vocational guidance still has far to go in assisting the worker to his proper work. Industry must further develop its experiments in co-operative group activity. When more progress has been made in these directions new incentive methods will be found to have emerged, and I am sure they will be more vital and comprehensive than any piece work or bonus system thus far contrived.

Robert T. Kent.¹³ I am inclined to disagree both with the author of the paper and with Mr. Wolf. I believe that both of them have made the mistake of arguing from the particular to the general, and whenever this is done false conclusions are very apt to be derived.

There is a place in industry for the financial incentive; there is a place in industry for the

¹²Everett Dean Martin, "Psychology" (Lectures in Print), pp. 96-97.

¹³General Manager, Bridgeport Brass Company, Bridgeport, Conn.

non-financial incentive. Sometimes a financial incentive is applicable and not a non-financial. In other cases the non-financial incentive will achieve results where a financial incentive would be of little or no use. Still other cases arise in which a combination of both financial and non-financial incentives will best serve the purpose. No hard and fast rule can be laid down.

I have the highest respect for Mr. Wolf's achievements with non-financial incentives, and I appreciate the high motives and ideals which have inspired his work. Nevertheless, I believe his idea that the non-financial incentive will achieve all that it is desired to achieve by the use of the financial incentive is not based upon facts.

I recall an incident at the plant of a well-known manufacturer, which was inclined to do a great deal of so-called "welfare work." The impression got abroad that the expense of this welfare work was being carried by means of deductions from the payroll; in other words, had the company not engaged in such work it could have afforded to make a considerable increase in wages. One of the workmen was talking to the Works Manager about this and said, "Never mind the welfare work: you put what it costs in the pay envelope and I will do my own welofaring."

During the past three years it has been my good fortune to supervise all of the industries in the New York State prisons. Prominent among those industries was the manufacture of automobile license plates. At the time that we took hold of the industry, the production was limited by a self-imposed task on the part of the convicts to sixteen hundred pair of license plates per embossing press per day. A brief study showed that at a conservative estimate not less than twenty-six hundred pair could be turned out in the prison working day of six hours. The prison officials assured us that any attempt to increase the output of the presses beyond sixteen hundred pair per day would result in an actual decrease of production, that the two crews who operated each press would refuse to make more than eight hundred pair each. The theory was, that when they had finished the eight hundred pair per crew, all the time saved belonged to the men and that they could amuse themselves in various ways as best suited their own convenience. This idea had tacitly been accepted by the prison officials and the limi-

tation of output had come to be regarded almost as a vested interest by the convicts. As a consequence of this attitude on the part of the prison officials and the convicts, the various crews on the embossing presses would finish their task at from one-thirty to two o'clock every afternoon and the presses would remain idle until quitting time. The situation was an extremely serious one for the reason that the buildings had reached the limit of their capacity for the installation of new machinery, while the demand for license plates was increasing at the rate of about fifteen per cent per year. A temporary solution was reached by adding a third crew to each press, and allowing them, for the time being, to continue at the same rate of eight hundred pair of plates per crew. This immediately raised the output to twenty-four hundred pair of plates per day.

Shortly after the addition of a third crew to the working force, a piece work system of wages was introduced into the prisons. The amount of wages paid was small—the maximum being in the neighborhood of fifteen cents net per day per man. Instead of paying each of the three men on each crew, the wages were paid to the press on the basis of twenty-four hundred pair of plates per day and the crew divided the earnings among them. Shortly after the institution of the wage system, a delegation from the original crews of the press inquired as to whether or not they would receive the same amount of money for embossing twenty-four hundred pair of plates if they dispensed with the third crew. They were told that not only would they receive the same amount if the work was done with two crews, but if one crew found that it could handle the work alone it would receive the same money that was being paid to the three crews. We were paying for output and not for time. By means of the gentle diplomacy, known to convicts, the third crew was eliminated from the presses within a week. After a brief period of operation at the rate of twenty-four hundred pair of plates per day, to ascertain whether there was any catch in the arrangement, production began to creep up, until toward the close of the manufacturing period, we were obtaining twenty-six hundred, and in some cases, twenty-seven hundred pair of plates per press per day.

The incentive in this case was purely financial; non-financial incentives would not have served.

In another case in the prison industries a certain shop was known as the discipline shop and was avoided like the plague. Convicts used every precaution to avoid assignment to it. Upon the institution of a wage system in which the men were paid upon a piece work basis, this shop presented possibilities of higher wage earnings than any other shop in the New York prison system. The men were able to earn as high as twenty-five cents per day net. Within two months this shop had ceased to be a discipline shop and the convicts worked as eagerly to be assigned to it as they formerly had avoided it. A long waiting list of applicants for jobs in this particular shop was soon established and, at last reports, was still running.

Mary van Kleeck.¹⁴ The difficulty with this subject is that the terms are not yet clearly defined. The discussion shows varying meanings in the same words. Obviously, in a money economy like ours, the financial remuneration is in one sense a primary incentive. This financial remuneration, however, is merely the medium of exchange. In other words, men and women work not for money but for the things that money will buy—lodging, food, clothing and the less tangible satisfactions which make up the standard of living of a worker and his family. Income determines the standard of living. For the wage-earner, whose income is all in his pay envelope, the manner of living and its satisfactions are in that sense primarily determined by the wage received. That is why wages are of such vital importance, and it is why the unions fight so hard to maintain and to raise the wage level. At the other end of the economic scale, profits for a similar reason become something to fight for.

But those who believe that financial incentives are not the most effective way of stimulating better work do not use the word in that sense. They take for granted the fundamental importance of the wage question. What they mean by financial incentive is an extra reward held out to stimulate the individual worker to put forth greater effort. If this is the acceptable meaning of the term for this evening's discussion, does not the issue resolve itself into this question: Who shall have the power to apply the incentive?

¹⁴Director Department of Industrial Studies, Russell Sage Foundation, New York.

A financial reward offered by management so organized that the wage-earners have no voice in its policies and procedures is an external stimulus. Just because it may increase the income it touches a vital spot. May it not become, therefore, an irritant which will actually prevent truly creative and long sustained effort?

But suppose the incentive is internal, originating with the worker himself. He may seek through group action to increase his income by getting higher wage rates for his craft group. If, again, management associates workers' representatives with it in determining conditions which result in larger or better output, the worker has some control over the incentives which are applied. Under these circumstances, the initiative comes from within. At the same time it is necessary that conditions surrounding the work shall be favorable so that the putting forth of initiative will bring what seems to the worker a natural result in improving both his status and his income for himself and for his group.

The inner urge of every worker is two-fold: He must earn a living and he wants to create something through his work. He will improve the quality and quantity of his work to make a better living. He will probably respond temporarily to the offer of a prize. If the boss can discharge him for not responding, he will be stimulated more quickly the nearer he happens to be to the poverty line. But a compulsory response cannot express the normal desire for self-improvement either in work or the kind of living made possible by work; compulsion from the outside produces inevitably a mechanical response. This, I take it, is the belief of those who oppose the effort to goad the worker on by the offer of a financial reward determined upon and controlled by management with no control by the worker as an individual or through his group.

The discussion seems to me to show, however, that at present we know very little about the whole subject. It has been most illuminating to have the question presented by those whose experiences have differed. Evidently those who have worked with trade unions, Mr. Brown and Mr. Wolf, do not hold the same views as do those whose experience has been mainly in industrial establishments having no agreements with the unions. We need much more recorded experience

on the subject from a larger number of industries. Experience happens to have been more fully recorded in plants having no relations with unions. More experiments under conditions in which the wage earners share in control are needed before we shall adequately understand incentives, financial or otherwise, in their effect upon the quality and quantity of work, and especially in their results for the worker as an individual and as part of a group. I hope that the Taylor Society will seek out experiments and make it possible to have the results described and discussed in later meetings.

Mary B. Gilson.¹⁵ Various pictures have presented themselves to me as I have listened to Mr. Wolf's friendly criticism of Mr. Smith's paper. The resulting impression of them is that no one method can be the inevitably right one for every situation. One management or one dominating person may make one method work like greased lightning while another management or person may make a complete failure of the same method in the same plant. Likewise, the same man might make a wage method successful in one plant, with a given set of circumstances, and a failure in another plant under wholly different circumstances. In the vernacular of the travelogue lecturer, go with me while I show you a few of the pictures that have presented themselves to me in rapid-fire succession this evening. First, a large munitions plant during war time, in southern Illinois. Many of the best workers leave almost as fast as hired, saying they had come to work with an incentive far higher than a mere wage incentive, but that they cannot see that even their patriotic motives justify working their heads off while loafers are getting the same financial rewards as themselves. They are obviously disgusted because there is no way of measuring output and everyone is paid on a straight time basis. The virtue of patriotism is evidently not its own reward. Does this prove that financial incentives are important to at least some workers even when the incentive of working for one's country is primary?

Now go with me to the Hawaiian islands. Here, if anywhere, group incentives and financial rewards are widely used. A group of workers, for

example, work on a certain tract of sugar land, with the incentive of sharing in the profits on the basis of the tonnage harvested. Surely here is an ideal situation, if the social instincts of workers can be directed into cohesive and unselfish group action. But what actually happens? On plantations where there is intelligent management and good supervision a group of workers may take great interest in the cultivation of their field and in harvesting a crop with high sugar content so that all may share equally in the financial reward for their productive enterprise. But on another plantation, with poor management and ignorant lunas, the group may have no morale whatever, part of the workers sneaking off for naps in the cane fields while their fellows do the work.

Again, picture a group of girls in a clothing factory. They are highly skilled, deft-fingered machine operatives, paid on the basis of a task and bonus system of wage payment. Their wages vary according to their skill and yet there is none of this base and contentious envy among them which opponents of financial incentives claim is the result of rewarding workers for their individual achievements in quantity and quality. They play together, they sing together, they talk and laugh together and there is no outward semblance of a wedge of dissension being driven between them because of their varying skill and their varying financial rewards.

The bargaining method has so long prevailed in the women's garment industry of Cleveland that it is too utopian to imagine it has been wiped out since production standards were introduced. Not that the situation has not been improved by use of time study and measurement of output, but it is just as well to be realistic and to talk with some of the time study men in the Cleveland women's wear factories before painting the picture with too rosy tints. Here, too, I conjecture, much depends upon individual management in individual shops and on the methods used to educate workers in time study, which methods of course vary as the intelligence of management and its attitude toward the whole problem varies.

These instances present themselves to me merely as part of a kaleidoscopic picture that has been projecting itself on my mind's eye tonight. Perhaps Mr. Wolf can extricate from it some general truth about financial rewards.

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Obsolescence and Depreciation

Studied From Management's Point of View

By GORTON JAMES¹

Domestic Commerce Division, U. S. Department of Commerce, Washington

Foreword by
Julius Klein²

I am glad that Mr. James has written this article, with his suggestions regarding the treatment of obsolescence, not because it represents the opinion of the Bureau of Foreign and Domestic Commerce, for it does not—the Bureau holds no opinion—but because it brings a new point of view into this important discussion.

Hitherto the controversy regarding the treatment of depreciation and obsolescence has been largely limited to accountants. But the results of accountants' figures become basic tools for the managers of industrial organizations. It would help greatly towards attaining sound conclusions, if the chief administrative officers of industry would take an active part, with the accountants, in discussions of this character, for the issues are not merely questions of method but questions of purpose.

EVER since Halford Erickson wrote his famous definition of depreciation for the Wisconsin Public Service Commission accountants have leaned almost wholly towards the inclusion of obsolescence as one of the facts of depreciation. The United States government, in its regulations and decisions relating to income tax computations, has followed the same practice so far as it has allowed obsolescence to be included as one of the costs of manufacture.

¹This article has been written to voice a personal suggestion, in no way to be taken as the view of the Department of Commerce, in the discussion of *depreciation* and *obsolescence* and their accounting. The manager's viewpoint, instead of the accountant's, is that from which it has been prepared. No specific suggestion, therefore, has been made as to detailed methods of application, but it is left to the valuation people and accountants to decide how far the suggested differentiation of obsolescence should be carried out and how it should be done.

²Director, Bureau of Foreign & Domestic Commerce

It is the purpose of this paper, however, to distinguish between obsolescence and depreciation, taking the latter in its older and more restricted sense of reduction in value caused by deterioration whether from wear or from age. Obsolescence is here used to denote the unforeseen wiping out or lowering of value of production equipment because invention has supplied a better device for the purpose, because fashion has ruled it out of style or because the business of the owner has outgrown his equipment. It is the writer's belief that managers and cost accountants should recognize that obsolescence and depreciation, so defined, are governed by quite different laws and affect values so differently that their accounting and financing should be handled separately.

Depreciation should be confined to the wearing and the aging of productive equipment which makes that equipment less and less efficient and therefore less valuable as time goes on. Such deterioration can usually be foretold with a considerable degree of accuracy. For instance Nicholson and Rohrbach in their "Cost Accounting" discuss at length the factors of age and of wear in use, and have proposed a schedule allowing for deterioration from age at a constant rate plus a rate for wear depending on how many hours a day the factory is run.

Obsolescence, on the other hand, is the sudden loss of the usefulness of a productive machine because a better and more efficient one has been invented and put into use with which the original one cannot compete. The value of the original is suddenly wiped out when the new machine appears but no one can foretell when that will happen.

Recently the equipment policies of two companies were brought into sharp contrast in a way that gives point to some important and interesting questions regarding obsolescence. Manufacturers,

it is only fair to state at the outset, have not come to any agreement as to the answers to these questions, and common practice in different localities is at wide variance. The following examples are merely extreme cases which may serve as illustrative.

A New England factory, which has a long history of successful operation but which lately has been feeling competition from other parts of the country, has always prided itself on the upkeep of its machinery. Some machines have been in almost constant operation for twenty-five or thirty years, and are apparently running as true and as smoothly as they ever did. The company has been conservative, with an eye to the future in all its policies. Depreciation has been charged off the plant and equipment on an "ultra-conservative basis"; even minor improvements and replacements as well as repairs have been charged to maintenance expense "so that there are no inflated values to carry." The engineering staff of the company is of high calibre. Every member is informed on the best and latest developments in machine tools and mechanical equipment, and when anything new is bought it has been the company's policy, for years, to buy the best regardless of price. But replacements are rarely made except when old machines are physically worn out.

An outsider recently diagnosed the company's present difficulty in holding its former position of dominance in its business as resulting from its not being up-to-date in factory and equipment. Yet in specific instances where modern machines were recommended to replace those in operation, it could not be shown to the executives' satisfaction that the increased production possible on the new equipment would balance the increased overhead arising from the difference between the *depreciated book value* of the old machines and the price plus installment cost of the new ones.

The company's executives also questioned whether they could make full use of faster machines than they already had because their equipment had been carefully balanced to keep idle machine time at a minimum. The installation of such new machines, they feared, would necessitate further changes in other equipment in order to maintain this balance, which might turn out to be far reaching and costly.

As contrasted with this situation, the writer recently met an equipment salesman who had just received an order for \$87,000 worth of new machines to replace equipment which the same salesman had sold to the same company less than a year and a half before. This company, not in the same district as the first, is also a company of high standing, over thirty years old, and reputed prosperous. There is almost no equipment in the factory over ten years old and a considerable portion of it is not over five years old. It is seldom that a machine is kept after a new one has been produced which is more efficient, regardless of the physical condition of the former.

The difference in policy between these two companies leads one to question the whole traditional method of depreciation accounting. Should a perfectly good machine be discarded as obsolete? The first company says "No, not unless the new one will show so much lower costs than are now being realized that it will pay for itself within two years"; whereas, the second says "Of course; if it is less efficient than the new one, it does not matter what its condition is, it should not be kept." Here is a far reaching difference in policy, especially when the cost system, which is depended on to tell the first company when to replace its old machine, sets an arbitrary standard which works in favor of retaining it.

The second company in the illustration does not recognize depreciation. The officials maintain that they do not allow their equipment to depreciate; their replacement and upkeep charges are their depreciation expense. But they are keenly alert for obsolescence and they say that, in their thirty odd years' experience with mechanical progress, no machine has escaped obsolescence long enough to wear out. Incidentally it may be said that they usually find ready buyers for their discarded equipment and seldom take large losses on it because machines which may be obsolete for mass production are not necessarily obsolete for the small producer.

Cost accountants, public utilities commissions and bankers frequently discuss depreciation. Some consider it merely an accounting of wear. Engineers are asked how long a machine may be expected to run, and their answers serve as the basis for setting up depreciation charges. Factory buildings, similarly, are written down each year on

company books as being worth less and less as they age. Most manufacturers, on the other hand, recognize obsolescence and attempt to take care of that factor merely by increasing the rate of depreciation write-off. Finally, there are a few who would separate the two and undertake wholly different methods of caring for them. But these few are deterred from making such a separation because the Federal Government in its income tax regulations provides that any provision made for obsolescence must be through the depreciation provision.*

There is a strong indication, however, that in times of rapid mechanical progress, obsolescence rather than deterioration is the governing factor affecting the value of productive equipment, and that in a large number of cases its value disappears because of improvement or invention long before age or wear have had an opportunity really to lessen its efficiency and therefore its value as an agency in production.

Obsolescence, however, is governed by entirely different forces from deterioration. It is not certain in its action and its incidence in any given case cannot be foretold as can the depreciation of wear and age. It is well known that invention and progress are not at all regular movements. They come in spurts, first in one field and then in another. Recently concrete has become the modern form of construction and steel buildings are out of date. Suddenly the buildings of the last thirty years have become obsolete. All buildings of the familiar type of construction whether old or young have lost much of their value because prospective lessees demand "modern construction." The older buildings are out of fashion.

The new type of concrete structures will last for many decades unless they are torn down to make way for some still newer type as yet unknown. That newer type may come soon or it may be years away, but, whenever it does come, the expense of removing the present structures will be very much greater than the expense of removing the type that has just become obsolete. That is a point for builders to think about seriously in their choice of types of construction.

There is one characteristic of obsolescence that everyone will recognize. Whereas the principal characteristic of both age and wear is that they

*See Regulations 45, 62 and 65.

progress fairly steadily with time, the principal one of obsolescence is the uncertainty of its action both in time and in extent. The high wheeled cycle may become entirely obsolete in twelve months as it is replaced by the modern bicycle, while the latter experiences only partial and temporary obsolescence with the advent of the automobile.

In one textile mill, however, where automatic looms had not been installed it was learned that the reason why no change had been made was that the unit costs of making cloth on the new expensive machines would be greater than the actual book costs obtained by the company's cost department. Investigation turned up the interesting fact that the value of the old looms had been reduced on the books, at conservative depreciation rates, until the entire equipment stood practically at scrap value. Using such values in making up the cost figures naturally resulted in unnaturally low unit costs. Cloth was produced, as it were, without equipment. Of course it was difficult to show that new costly equipment, however efficient, labor saving, and lessening to the true costs, could produce cloth at lower apparent costs than no equipment at all. The figures were fooling not only the accountants but the management.

Furthermore, if the depreciation methods of current accounting practice were correct, then the results of deductions from original costs by depreciation write-offs should, of course, yield figures which approximate the true facts. On that basis machines should have reached the point physically where they should be replaced, on the average, when the write-offs reach their bottom points. But the spinning equipment of the textile mills, for instance, has not been improved since our mills were first erected by any really far reaching inventions which have made the original types out-of-date. Depreciation charges on spinning equipment, nevertheless, have been carried to a minimum in most New England mills, and yet most well-kept mills show increased rather than decreased production efficiency from their spindles because of the very smoothness which wear has imparted. Depreciation has been deducted not because of wear or age, but because men have attempted to forestall an obsolescence which has not yet arrived. In other words, depreciation in current accounting practice is not telling the truth.

Of course, there is wear and tear. Buildings, especially the old wooden ones, wear out after a time. Machinery not used or cared for will rust. The factor of deterioration certainly should not be ignored. But are we not justified in questioning its use as the governing factor, as accountants have been using it, in revising their book values of equipment? Is it not instead, in many instances, a secondary factor operating slowly and quite separately from the major factor of obsolescence?

Obsolescence has no relation to time or use. It is a measure of progress and invention. It has its closest relationship to the thought of men. The more men turn their thoughts to particular methods of production the more inventions occur and the sooner the machines in use become obsolete. Obsolescence may be said to be the positive factor; depreciation, the negative. Perhaps, since depreciation often has been compared with the aging of people and its accounting theory compared with theories of pensions, we may similarly compare the phenomenon of obsolescence with life and death, and, following the analogy, we may find that accounting theory, properly to care for it, may resemble life insurance.

Death overtakes two-thirds of us before superannuation; obsolescence overtakes certainly a large percentage of our productive equipment before it wears out. Depreciation and superannuation both will occur at fairly predictable times, provided, of course, that those dates are reached. Obsolescence and death, on the contrary, occur sooner or later inevitably, but in their cases, time is the factor of uncertainty. The actuarial theories of pensions and of life insurance are founded on quite different mathematical laws. Likewise depreciation and obsolescence.

The impossibility of accurately protecting a company's property values against obsolescence by increasing depreciation rates to include this hazard should be obvious to anyone who stops to consider the irregularity of action of obsolescence. Such a plan merely throws the depreciation factor out of relation to the facts of deterioration on the individual machine or building, without adequately taking care of the obsolescence factor. The spinning frames, previously referred to, may not yet have depreciated at all but there may come a time when there will be invented a better way to spin yarn. When that time comes, the comparison

which the cost figures should show, would be that of production on *undepreciated* spinning frames of the old type against production on the new invention. The comparison would be a true one and the decision indicated by it a correct one.

But what can we do, then, to protect ourselves in advance from the hazard of obsolescence? Common practice is to charge off depreciation on each item of plant and equipment and to use as the book value of our plants the total original value of all equipment items, with total depreciation deducted. Occasionally we set up cash reserve funds for depreciation just as we accumulate funds for our own or our employees' old age. In both instances the time when the fund will be called into use for a given individual, if it is called at all, can be foretold with a fair degree of accuracy.

The only uncertainty in both cases is whether or not death on the one hand or obsolescence on the other will have intervened in the meanwhile. In other words, while old age and depreciation can and should be taken care of on some annuity basis, the hazards of death and obsolescence must be financed on an assurance basis which takes into account the uncertainty and variability as to time, and yet the inevitable certainty as to final fact which is characteristic of both these risks.

Death and obsolescence cannot be financed on individual cases. Only by grouping many cases can an average rate be attained, and that average is true only for the group but not for the individual members. No one can tell when the invention will be made which will render the machine obsolete and destroy its value. Until that time it is as valuable as it ever was. No one would suggest marking down the value of a building year by year because of the possibility of its destruction by fire. If an accountant did that anyone would say that he was misrepresenting the facts. It is just as true that the book value of a machine, reduced because of the risk of obsolescence, is not correct and should not be used in comparing its performance with that of a new machine.

But by grouping many buildings a fair average rate of destruction by fire can be found. Similarly an over-all obsolescence rate on all the machines in a factory, over a series of years, may quite closely approximate the truth. The rate, in the form of a percentage of the total equipment value,

would depend on the amount of invention and the rapidity of progress in that industry. For instance, the rate for obsolescence of automobile factory and chemical manufacturing equipment at present is high, while the rate for textile mill equipment has been unfortunately low.

In practice probably a fund for obsolescence should be collected for use rather than for reserve. It should free a manager to replace any machine for whose purpose and use in his factory he can find a better and more efficient one. Psychologically it should make for progress. It would be a measure of the management's success in keeping its plant modernized. If the fund correctly represented the obsolescence rate of the industry, then a management which did not completely use its fund, through a decade, for replacements could be suspected of not keeping its plant up-to-date, whereas a management which used much more than the amount of its obsolescence fund during the decade should be accused of extravagance.

On the other hand, no individual machine would have its value written down on the books because

of the factor of obsolescence. It might be a machine which became less efficient with age or wear, in which case a proper depreciation write-off would be made. Or it might be a machine which, if kept properly repaired and maintained, would not depreciate in efficiency to a measurable extent, in which case its original value should be the basis for unit cost computations. Then when the time comes that a new machine is offered, the true value of the old one would be available as a correct basis of comparison with the new one. If the latter is more efficient, it should replace the old one.

By such accounting methods it would probably become apparent that the New England plant, referred to at the beginning of this article, is feeling competition where before it dominated its field because its productive equipment is not as efficient as that of its competitors. On the other hand, perhaps the other plant referred to may be making excessive replacements in keeping abreast of modern invention and would be found to be spending more than a funding of the normal obsolescence rate.

Has Taylorism Survived?¹

By DEXTER S. KIMBALL

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IN A PAPER by Lucien A. Legros, President of the British Section of the Société des Ingénieurs de France, entitled *Economy of Human Effort in Relation to Industrial Fatigue*, the following statement appears:

It is a matter for regret that up to the present time no critical inquiry has been made into the extent of permanence in American industry of the work of Taylor, Gilbreth, and their followers. The work of these gifted pioneers was mainly directed to achieving definite objects, but it is difficult to ascertain from their writings whether the conditions were sufficiently stable to give permanence to the results, or how far they were applicable for conditions that varied.

In its discussion D. R. Wilson, of the Industrial Fatigue Research Board, comments as follows:

¹Reprinted by permission from *Mechanical Engineering*, Vol. 49, No. 6, June, 1927.

Finally, Mr. Legros at the end of his paper alludes to the desirability of instituting some inquiry as to the extent to which the principles of Taylor have been applied in the United States. In theory I agree with him, but I am strongly disposed to think that the investigator would draw a blank. When I was in America, in 1924, I made many inquiries on this point, and found that from every quarter I approached came the names of the same four or five firms, and in such of these as I visited, only a very rudimentary form of Taylorism had been adopted.

These statements have attracted the attention of the author because they show a total lack of knowledge of what really has occurred in American industry during the last twenty-five years, and of the general tendencies in all progressive industries in this country. There is little difficulty in correcting the idea, expressed in the first statement without going outside the Transactions of the A.S. M.E. In 1912 a special committee of the Society reported at some length upon the status of modern industrial management and that report is to be found in Vol. 34. Again in 1922 L. P. Alford pre-

sented the results of an exhaustive study of the progress that had been made in applying the teachings of Taylor and his associates and followers in a classic study entitled 'Ten Years' Progress in Management. This is to be found in Vol. 44. It is true that this study does not deal minutely with the question of fatigue, which is the subject of Mr. Legros' paper. But the question of fatigue itself is intimately connected with and dependent upon the other phases of management which Mr. Alford has so ably reported upon. Fatigue has been the subject of much study in American industry, but the discussions of this topic are quite widely scattered throughout the literature of management.

The second quotation is interesting from another angle, for it indicates a lack of knowledge of one of the most common phenomena in the history of the race and one which Kipling must have had in mind when he wrote—

When 'Omer smot 'is bloomin' lyre
He'd 'eard men sing by land an' sea.
An' what 'e thought 'e might require,
'E went and took—the same as me.

In these lines Kipling expressed a great truth that has applied to every great reform movement that man has ever inaugurated. Every reformer is to a large degree the product and result of the times in which he lives as much as he is the product of the driving power within him. All great reforms and changes gather first as a nebulous cloud, the result of the work of many men, often working independently of each other and producing developments that, at the time, may not appear to be related to each other. Then comes some outstanding figure who, selecting a number of these apparently unrelated results, welds them into a new philosophy, adding perhaps some great contribution of his own, or possibly making no original contribution whatever. And because he gives definite shape and form to what had been previously only a *tendency*, he obtains a hearing and men flock to his support. As time goes on, however, it is found that the specific form into which he has molded the new movement is not a universal panacea and is not applicable to all individual cases, even though the elements of which his formula or organization is composed are all basic truths. Quite naturally, then, those who are interested select from these truths or principles those that are immediately applicable to their problem and

develop a somewhat different interpretation of the original formula or panacea. The history of all great religious movements and reforms illustrates this process admirably.

An excellent illustration is found in the work of Robert Owen, the father of welfare work, so called. Owen organized at New Lanark near Glasgow the first model industrial village, and there co-ordinated practically every instrumentality that has ever been used since in this work. But there are no model industrial villages exactly like Owen's to be found anywhere today. However, no one informed concerning this movement would say that Owen's work had perished. Some of his instrumentalities no longer apply because of changed industrial conditions and legal enactments; they have outlived their usefulness. But combinations of some of his methods in endless variety are to be found all over England and the United States. And more important still, the *spirit* of his reforms has remained a vital factor and an abiding influence in modern industry.

So it is with the work of Fred Taylor. Few, if any, enterprises will be found today that are organized exactly after the model set up by him at Bethlehem. But combinations of his methods in endless variety are to be found all over the country. It should be remembered that Taylor did not claim that he had invented a number of new management mechanisms. Most of the elements of his system such as cost finding, inspection, routing, dispatching, etc. were already in use in isolated and somewhat crude form. He simply took these mechanisms, refined them, added a few new ideas of his own, molded them into a new philosophy of management, and illustrated this philosophy by a concrete example which produced the practical results desired. Without this concrete and successful example it is doubtful whether the movement would have readily gained headway against the inertia of old habits and inefficient practices, and Taylor in all probability would have been remembered only as another idealist.

But when others tried to use these methods exactly as Taylor had enunciated them it was found that they did not fit the circumstances, and after some rather disastrous experiences in trying to make the circumstances conform to the classic example at Bethlehem, the thoughtful manager began to select those mechanisms that fitted his needs

and ceased to worry because he could not use all the mechanisms employed by Taylor; or in the words of the poet:

An' what 'e thought 'e might require,
'E went and took the same as me.

To say, therefore, that an investigator of the Taylor methods in the United States "would draw a blank," is to indicate gross ignorance of just what has occurred. Mr. Taylor's great paper *Shop Management* still remains the basic statement of a new industrial philosophy. Many interpretations, however, have been made of this philosophy, just as many and diverse interpretations have invariably been made of the work of all great reformers, religious and political. But any one well informed concerning Taylor's pioneer work will find no difficulty in identifying some of his methods in almost any up-to-date manufacturing plant in this country. And in many of them he will find some of Taylor's mechanisms of management almost unchanged from the original. Perhaps the most common elements to be found are those of rate setting on the basis of accurate time study, and the planning and dispatching of operations on the basis of a prearranged time schedule.

But more important and underlying any and all of these mechanisms of management that may be identified is the spirit of the man himself as the prophet of more efficient methods. Whether any or all of his specific methods survive, the spirit of inquiry that he set into motion concerning industrial methods, his frank skepticism of the efficiency and desirability of methods and processes, even though they bore the imprint of hoary age and the stamp of ancient precedent, will ever remain one of the great contributions to the industrial arts. At no time has the influence of Fred Taylor been so great or his memory so secure as at this moment when the factories of the United States are pouring forth a stream of industrial wealth such as mankind has never witnessed. His share in this great development is great, indeed, and difficult to estimate.

The BULLETIN OF THE TAYLOR SOCIETY is included in the indexing of the Industrial Arts Index to be found in Public Libraries.

News of the Sections

Central New York

The April 29 meeting of the Central New York Section brought out a record attendance. The subject was "Time Study Methods," the speaker Mr. Claude S. Perry of the Corona Works of L. C. Smith and Corona Typewriters, Inc. The May meeting was held on the 20th, when Mr. M. J. Hayes, Auditor of the Eastman Kodak Company, talked on "Cost Sense and its Application."

Eastern Massachusetts

The Eastern Massachusetts Section held its May meeting on the 17th at the Boston Chamber of Commerce with Edwin C. Johnson, President of the H. A. Johnson Co., of Boston, presiding. The Bedaux Point System was discussed by Mr. L. C. Stevens of the L. C. Stevens Co., of Boston, Mr. W. F. O'Connor, Production Manager of the Universal Winding Co., Providence, and Mr. Aldo P. Greco, Head of Standards Department, Simonds Saw and Steel Co., Fitchburg, Massachusetts.

New York Metropolitan

Mr. Elliott Dunlap Smith, Division Manager of the Dennison Manufacturing Company, Framingham, Massachusetts, was the speaker at the April 14 meeting, talking on "Financial Incentives in Industry." Mr. Robert B. Wolf, Mr. Robert T. Kent and Mr. Geoffrey Brown, named discussors of the paper, were joined by a number of others in consideration of various angles of the subject. The last meeting of the year was held on May 19, when Mr. Whiting Williams, Counsel in Industrial and Public Relations, Cleveland, gave a paper on "The Big Boss and Lesser Ones: Executive Relations and Industrial." Miss van Kleeck and Mr. Bowers were joined by others in lively discussion. Mr. Henry Bruere, the new chairman of the section, presided. Other officers elected for the coming year were:

Vice-Chairman—Miss B. Eugenia Lies
Secretary—Miss Ruth Reticker

The Executive Committee includes: C. L. Barnum, John M. Carmody, Wallace Clark, Edmond E. Lincoln, Joseph A. Piacitelli, T. L. Preble, George Soule and R. G. Wagenet.

Southern Tier

Mr. H. H. Griswold, President of Merchants National Bank, Elmira, N. Y., talked to the Southern Tier Section on "Some Trends of Business" at the April 11 meeting of the section. The May meeting was held May 9 when the speaker was Dr. Donald A. Laird, who is in charge of the Psychological Laboratory at Colgate University. His subject was "Personalities in Industry, or Personal Traits in Placing and Motivating Workers."

"Improving Manufacturing Facilities" is a two volume pamphlet which has just been published by the Bureau of Commercial and Industrial Affairs of the Boston Chamber of Commerce. The first volume deals with general fields for improvement such as simplification and standardization, progressive manufacture, power efficiency, working conditions, employee selection and marketing science. While the subjects covered are general the treatment is most specific. Concrete examples are used as illustrative material and excellent drawings and tables accompany the text. The second volume takes up the more technical questions of production measurement, manufacturing control, routing, scheduling, dispatching, internal transportation, machinery and tools, and human relations. Henry P. Kendall, Henry H. Farquhar and Gorton James, members of the Taylor Society, are among those responsible for this study, a real contribution on the important subject of waste elimination in industry. It is commended to BULLETIN readers.

The Library Journal for April 15, 1927, contains a helpful list of business books, grouped under thirty-six subject headings, published from April, 1926, to April, 1927.

Reviews

Applied Budgeting. By Henry Bruere and A. Lazurus, A. W. Shaw Company, Chicago, 1926, pages 248.

The authors of "Applied Budgeting" have rendered a valuable service to the leaders of industry and business who have not adopted budgeting control as a tool of management for their particular lines of work. This book

will help to dispel any doubts that such men may feel as to the applicability of budgets to lines of business which are "different" or "peculiar."

The budgeting experiences and procedures of several companies from each of eleven widely differing types of industry have been recorded, illustrated with forms and discussed in the various chapters. The following types constitute the eleven lines of work: oil companies, railroads, banks, newspapers, contracting and construction companies, metal working plants, department stores, canners, hotels, ice cream industries, garment industries.

While it is admitted that these budget studies are somewhat sketchy and incomplete, there is a sufficient amount of information given to show that planned and controlled operations through budgeting methods are essential to the conduct of a successful business operating under competitive conditions. The fact that names are given for the well known companies whose experience has been drawn upon for the contents of the book opens the way for the reader to secure details on points of particular interest developed from reading the text.

The record of experience of the industries mentioned has largely been the result of studies conducted by the authors through the Policyholders Service Bureau of the Metropolitan Life Insurance Company. However, these writers have used the first and concluding chapters to give their own ideas on past, present and future budget programs, suggesting ways for insuring their successful application.

The necessity for proper accounting as a foundation for budgets and a willingness to face the truth is noted:

"No business is in a position to consider the development of a budget until it is equipped to record and analyze the results of its activities and to reflect these results in the balance sheet" and

"—there must be first an acceptance of the budget principle; namely, a willingness to face the facts, a determination to obtain them and a courage to act according to the light that the facts produce."

Some fifteen points of beginning for a budgetary control are listed. This illustrates the fact that budgets may well be a matter of growth, being first applied at a point of particular necessity and later expanded to other activities until a complete program of budgetary control is developed.

Steps are outlined for the installation, points of danger indicated, methods of forecasting the volume of the business together with the establishment of sales quotas and measures for securing flexibility of control are all discussed.

It is pleasing to note the emphasis which is placed upon the budget as a means for stimulating employee goodwill and confidence in management as well as the fact that the budget is a device for promoting continuity of employment.

Another phase of the situation which is seldom discussed but which should be the better appreciated is found in the following:

"Certain large businesses pride themselves on achieving a public status; others are called upon by virtue of their size to submit to a persistent inquisitiveness respecting their conduct and intentions. Many businesses are subjected to public regulation and all business is confronted

with a critical public opinion, not necessarily hostile, but often suspicious. The American public feels a desire to govern its own economic, as well as political destinies. It is not much tempted to undertake an experiment with the various proposed alternatives to private business management of our economic life, but it is prepared to demand of private business justification by practical tests of serviceability. This attitude is not crystallized into an organized demand, but it is sufficiently persuasive to give the subject of public relations a position of great importance in the thought and policy of progressive business. The budget will serve to exhibit the projected scope and current plans of those units of business which are in the public eye . . ."

MERRILL R. LOTT¹

The Democratic Way of Life, by Thomas Vernon Smith, the University of Chicago Press, Chicago, 1926, pages xi, 211.

Abuse of the word "democracy" has been gradually extending from Fourth-of-July orations to speeches before management conventions. No word merits clearer thinking or more restraint in use than this one, especially because it is tied up with the whole problem of objectives in life and in industry. And any manager who allows himself to believe that he is finding the democratic way in industry along some obvious and easy lines is not only confusing himself but doing no real service to the ultimate progress of the basic idea and aim.

Professor Smith's book, if it could be carefully read by managers, would tend to clear away these misty notions in favor of a point of view about democratic living and working which is philosophically and psychologically sound and far-seeing.

The purpose of this essay is to inquire into the meaning of democracy; and the author takes the familiar slogan of "Fraternity, Liberty and Equality" as the text and outline of his argument. Without trying to recapitulate the entire thesis which should be read to be enjoyed, both from a literary and from an intellectual standpoint, it may be said that the author shows quite conclusively that there are aspects of the ideas of fraternity, liberty, and equality, which are all integral to the successful development of a democratic way of life for individuals and for nations.

Because he finds that there are certain things in the day's work of unskilled manual laborers in industry which do not hold out to them an opportunity to realize these three values as he defines them, the author is concerned to see what can be done in the reorganizing of factory labor to recover some of the essential elements of real living. His comments here are astute and in line with some of the best thinking of modern industrial engineers and psychologists.

He makes an interesting point that we see in the professions today those characteristics which are the "har-

bingers of democracy" in other walks of life, if the professional spirit could be applied there. The socializing of experience, the offering of equal opportunity to all qualified members, the emphasis upon functional usefulness, are all professional characteristics which the author sees as necessary to restore to other work its proper quality, if it is to contribute to democracy.

The professions, he says, "spread abroad the living truth that the purpose of human life is the enrichment of human experience." He points out that the motive for the universalizing of the professional spirit must be in part sympathy, in part the fun of extending present experiments under enlightened leadership, in part a recognition on every side that the present isolation of the professional field of activity to three or four is wholly arbitrary. The surgeon, he reminds us, does work which is dirty and more disagreeable than that required by many white-collared—but at present unprofessional—activities. He asks, "If such uncompromising (work) material can become dignified and creative, why not other kinds of labor as yet unclaimed for joy?"

The final chapter on leadership is a brilliant and valuable re-emphasis upon the qualities of true leadership in a democracy. He emphasizes the distinction which other recent writers have made between the archaic conception of "power over" and the psychologically sound one, now gaining in currency, spoken of as "power with." And he emphasizes the other inspiring truth, that in a democracy every man must be a follower in many fields but may be a leader in some one.

He is, of course, throughout his discussion, at the opposite pole from those who think of democracy in terms of any one type of political structure. Democracy, both as a way of life and as a form of government, is that one which at a given time and place is aiming at "the greatest common good through the development of every individual to his highest." The author realizes that so conceived democracy is in its swaddling clothes, but he strikes the ringing, and, to the reviewer, unanswerable, note, that difficult a way of life as it is, "there is no humane alternative." In other words, every alternate proposal of values and objectives which history records or imagination can conjecture means the defeat and the subversion of personality for some one or more groups in society.

Leadership, the development of superior ability, the cultivation of special taste and sensitiveness—these are not minimized in a democracy. They are encouraged, liberated, and generalized to the utmost extent possible. But they are to be marks not of separation from mankind—not excuses for isolation, aloofness, and snobbery—but occasions for, and tools of, special creative activity. And this activity of fine minds and exalted souls contributes, whether the individuals or groups wish it or not, to the enriching of human experience.

Finally, the author strikes a telling blow at the inevitable criticism that, under the kind of functional and specialized working which he assumes must develop, there will be no social unity, no answer to the question, "What is the chief

¹Management Engineer, Mountain Lakes, N. J.

end of man?" On this natural query the author speaks with a lyric yet realistic sense in what is perhaps the finest paragraph in an otherwise prophetic and ennobling book: "By substituting for specious mystic insight the common human power of observation and by then refining raw observation into scientific accuracy through laboratory experimentation in natural science, through statistical methods in social science, through criticism in the humanities, and through reflective procedures at law, the modern age approaches a more meaningful unity than has been known among men before, whatever the reputation of the Middle Ages in this regard. The only hope for a common goal that does not involve coercion is to make the going itself the goal and to cultivate a taste for variety in travel."

The reviewer's enthusiasm for this volume does not lack in discrimination. But the last few years have witnessed the outpouring of so many collective bargaining, employee representation, employee stock-ownership, employee-director plans of organization and balloting that it is refreshing to be reminded that what may be democratic today for one group may be no longer democratic because no longer educational and developmental tomorrow.

The democratic way of life can manifest itself in industry through divers forms. But whatever form is in use, it must be recognized to be not perfectly democratic if in the last analysis important checks upon personal liberty and upon functional effectiveness are imposed from without by some related and yet unintegrated group. The relation of the banking world to industry perhaps supplies us with the most poignant example of inadequate integration today, and leaves us with a proper sense of the leagues and years which are to be traveled in the process of rendering industry democratic because truly contributory to personal growth.

ORDWAY TEAD²

Employee Stock Ownership in the United States. By Robert Foerster and Elsie H. Dietel. Industrial Relations Section, Princeton University, 1926, pages viii, 174.

Professor Foerster and the Industrial Relations Library at Princeton have brought the student of management under a very real debt for their recent study of employee stock ownership in the United States. Although primarily factual in intention, this study opens up enough suggestions and questions to move the economic philosopher to prolonged reflection. For here we witness the novel phenomenon of some hundreds of thousands of employees of the rank and file holding well up toward a billion dollars worth of securities in American corporations, an arrangement which is extending from company to company with an almost unbelievable rapidity. A wholesome variety of plans and methods is being experimented with, and there is every reason to expect that out of this vast body of

²Department of Industry, New York School of Social Work.

experimentation certain forms of procedure are likely to develop which may considerably modify the typical "capitalistic" absentee ownership corporation, which has been the familiar phenomenon of the last quarter century.

Professor Foerster is most guarded in drawing any conclusions from the bewildering array of facts which he offers; so much so, that his document is a model of scientific industrial inquiry. Perhaps part of the fascination of this volume is the stimulus it gives to one's imagination as to the modifications to which the typical corporate structure may be destined in the next generation. Certainly the effect of this movement upon what is usually called working class psychology is destined to be appreciable; and whether or not it will be in a direction which will tend to develop the avowedly social purposes of corporations more fully than under absentee ownership yet remains to be seen.

It is conceivable that employee stockholders, as their holdings become more substantial, will take the color of their industrial views from the present typical capitalistic stockholders. On the other hand, the tie-up which is increasingly evident between stock ownership plans and employee representation plans suggests that there is in process of growth a structure of representative control which may at the same time be in a democratic direction and subject also to purposes which are scientific and social rather than competitive and selfish.

The present reviewer cannot but feel that any consideration of the science of management which today ignores the problem of the potentially increasing influence of the employee stock owner is an attempt to solve a problem without the use of some of the most significant data. The problem of ownership is inevitably tied up with the problem of incentives, of morale, and the larger problem of a competitive as against a scientifically co-ordinated industrial growth. Every student of the science of management will find data for his thinking about tendencies in this book which it will be little short of disastrous to have ignored.

ORDWAY TEAD²

Procedures in Employment Psychology, by Walter V. Bingham and Max Freyd, A. W. Shaw Company, Chicago, 1926, pages xi, 269.

Messrs. Bingham and Freyd have performed a valuable service to the world of management in setting forth in clear and scholarly fashion the procedure which must be used in developing, evaluating and installing measurement methods for vocational tests. The fact that they do not minimize the difficulties of this procedure and do not hesitate to embark upon rather elaborate mathematical calculations should help the enthusiastic manager to give pause regarding the attempt to use tests for selective purposes.

The authors realize that there is no primrose path in this field, but on the other hand, they are hopeful as to its promise, if it can be scientifically and conservatively de-

veloped. In reality, the book is most valuable for the psychologist and tester. Unlike Kornhauser and Kingsbury's "Psychological Tests in Business," it is a manual for the laboratory worker rather than a general statement for the executive. As such, it is alone in its field, and a credit to American industrial psychological scholarship.

ORDWAY TEAD²

Personnel Management on the Railroads. A study by the Policyholder's Service Bureau of the Metropolitan Life Insurance Company. Simmons Boardman Publishing Co., New York, 1925, pages xv, 227.

As books on personnel management go, this one by the Policyholder's Service Bureau of the Metropolitan Life Insurance Company is as worthy a contribution to the discussion of this subject as any which has yet appeared. Its outstanding merits by comparison with other treatises of this kind, may be summarized as follows: it is short, readable and to the point; it deals with a specific industry, so that its recommendations are definite and concrete; it is aware of the fact that organized labor is a most important factor in the personnel situation in industry; it does not fear to credit the standard labor organizations of the railroad workers with constructive contributions advanced in the interest of more efficient and economical railroad operation.

The approach of this book to the railroad personnel problem is logical. It emphasizes first that the most acute aspect of this problem necessarily turns around matters of wage compensation. In addition stability of employment, working conditions, recruiting and training of employees, safety sanitation, ventilation, housing, and relief for injury, illness and death are also stressed. The most interesting and valuable part of the book, however, deals with constructive relations between employees and management. The impression conveyed is that genuine progress in the field of wage negotiations, employment stabilization, bettering working conditions, preventing injury or providing relief, can best be achieved through constructive relationship between employees and managements. In other words it emphasizes clearly not only that dealing sympathetically and constructively with these problems is among the most important functions of management, but also that such problems can only then be adequately and efficiently met when the employees, through a system of organization and representation, are enabled to cooperate with the management in handling these matters. In fact, the book really goes further and insists that the thing which needs to be done in order to improve the general conduct of the railway industry is to develop and utilize "the latent capacity of individual and groups of employees in increasing the well being of the railway by more satisfactory service to the public, greater efficiency of operation and hence more assured earnings to workers and owners."

Thus this study might be said to substantiate the newly discovered principle of management, or perhaps better, the scientific organization of industry, namely that employees in industry must be enabled to act collectively with management through well defined channels if the morale and efficiency of the industry is to be maintained at the highest possible level.

With this contention established the book then outlines and analyzes various forms of relationship between employees and managements of railroads. While no attempt is made to appraise the two principal types of organized relationships prevailing in the industry today, namely employee representation as usually found on company union railroads and collective bargaining as it exists on the railroads which recognize the standard Brotherhood and A. F. of L. organizations, it does make clear the inherent differences between these relationships. As a consequence any intelligent and trained student or representative of railroad management ought to be able to do the appraising himself and form a conclusion as to the type best suited in the long run as the basis for effective and lasting cooperation between the workers and managers of the industry.

Along this general line the study among other things also insists, as far as railroad management is concerned, that it is desirable to functionalize the handling of the human relations of the industry and create a personnel department for this purpose. Off hand, this may seem a reasonable and good thing to do. While it may be true that many experiments in "personnel administration" have been inaugurated in the last ten years, it is more of a question now than five years ago as to whether or not this departure in management is really sound. It rather appears nowadays that more is to be gained by way of solving the human problems of the industry through the better and more conscientious pursuit of well recognized and established management methods than by creating a new department with duties more or less hybrid, vague and general. In short let the management tend properly to its job of planning, budgeting, employment stabilization, sanitation, ventilation, safety, research, and so on; let the employees develop their own organizations and select their own representatives, let management agree with the employees through these independent organizations fairly to share the gains due to systematic cooperation, let it seek the advice of the employee representatives when light is desired on the so called human problems of the industry, and such innovations as "labor managers" or "personnel directors" will not appear so necessary. And anyway, with the matter of morale so very important, especially on our railroads, it is a grave question if the highest executive officer of the railroad should not keep in direct intimate touch with this whole matter. At all events, on railroads where the presidents themselves take a deep personal interest in the human problems high morale is the outstanding result.

In some respects this study is a sign of a new awakening in the American railroad industry. It reflects the fact

that the conscience of railroad management has been aroused as regards the obligations of the industry to its two million employees. It also clearly reveals the fact that the standing of the industry with the public is largely a reflex of the contentment felt by the employees with their working conditions, wages and relationship to management. In this capacity its findings deserve to be taken carefully to heart. There is much in the book to benefit the railroad officers, and there is much to encourage the spokesmen for organized railroad labor which not only is struggling to improve the lot of the railroad worker, but is willing to help railroad management so that the industry in turn may do progressively better by its employees.

O. S. BEYER, JR.^a

The Psychology of Selecting Men. By Donald A. Laird, Ph. D., McGraw-Hill Book Co., Inc., New York, 1927, pages xii, 345.

There has been a succession of authentic books the past five years dealing with questions of employment psychology. Most of them have been readable and fairly concise. Dr. Laird's present revision brings a good deal of this material up-to-date and puts it in such form as to be easily accessible.

To one familiar with the subject too large a share of the book might seem to be devoted to the various "pretenders to the throne." We will apparently always have them with us since the gullible as well as the poor are ever present. Dr. Laird certainly leaves them little to stand on and any business man who is uninformed may perhaps profit by this section, but for most of those informed on management questions the sections on tests, rating sheets, applications, references and other tools used in the selection and handling of workers will be of most interest. There seems to be, however, on the part of the author a tendency to state facts somewhat dogmatically or to make casual reference to the source of the material. While there are a few footnotes and some suggestions for collateral reading a rather complete bibliography and more careful annotation would be of decided value in the use of the book for serious work. Even though it is obviously designed to be used as a text book and is excellent in most ways for that purpose, students as well as business men would find it easier to pursue further investigations if these aids were provided. Even though Dr. Laird may know most of the experimenters personally at least one reader covets the opportunity of discovering a little more closely the background of some of the experiments and the attitudes of the persons responsible for them.

If psychology and especially so-called "practical psychology" is to establish itself on a sound scientific basis it must encourage this spirit of inquiry, even of doubt, as to the validity of data quoted and be prepared to quote chapter and verse promptly.

^aConsulting Engineer.

The various charts, some of which are independent of the text, are in themselves worth studying but might also in some cases be a little better authenticated. If we insist on a critical attitude towards the fakes, legitimate material ought to be open to even closer scrutiny. Dr. Laird will undoubtedly welcome such an attitude towards his book and it provides an excellent starting point for further investigation. For the sake of those who may wish to find further facts it may be well to mention that the new address of Psychological Corporation to which Dr. Laird refers is 40 West 40th Street, New York City, and the list of local representatives apparently also needs some revision.

SAMUEL S. BOARD^d

Personnel Administration. By Ordway Tead and Henry C. Metcalf, McGraw-Hill Book Co., Inc., New York, 1926, pages xiv, 543.

The second edition of this book has been completely revised and brought down to date without being enlarged to any appreciable degree. Its purpose, as stated by the authors, is "to set forth the principles and best prevailing practice in the field of the administration of human relation in industry."

While most of the subject matter remains as in the earlier edition, its presentation has been simplified, and its value has been enhanced by the addition of much new material in the way of concrete examples of modern practices.

In the six years intervening since the publication of the first edition, many of the problems in personnel relations have become crystallized and real advances have been made toward working out their solution by organizations engaged in a great diversity of pursuits. As the problems have been different in various lines of work, so have the solutions been different, and the authors of this book have given a wide range of examples to illustrate methods used to solve the problems successfully.

The advantages and disadvantages of varying practices are impartially given, though consistently the authors maintain their attitude of the right of the worker in industry to be considered as an individual.

JANE C. WILLIAMS^e

Elements of Cost Accounting. By Anthony B. Manning, C.P.A., McGraw-Hill Book Company, Inc., 1924, pages xii, 166.

This book, by a member of the staff of the New York Institute of Accountancy and Commerce, presents "the subject of cost recording in an illustrative manner, much as elementary bookkeeping is usually taught, in successive

^dDirector, Yale Graduate Placement Bureau, Inc., New York.

^eDirector of Personnel, The Plimpton Press.

steps, in proper sequence, coupling up the books and records in both the accounting department and the cost department, using first a Job Order System and one month's transactions for the problem data and the graphic charts as well as explanatory text as a guide, later illustrating the Process System in a similar manner.

"In this way conditions will be the same, as far as possible, as if the student, without any knowledge of cost accounting, accepted a position in a plant that was operating either of the above systems."

Cooperative Advertising by Competitors. By Hugh E. Agnew, A.B., M.Ph., Harper & Brothers, New York, 1926, pages viii, 241.

Within the last five years group or association advertising of some commodity has become a challenging factor in sales and industrial development. Its growth and effective results merit the attention of any advertising man and any alert merchant or manufacturer or student of economics. Few realize all the facts. Professor Agnew's book presents them. It is at once convincing and reliable.

The book is practical. It is based on experience. Before Mr. Agnew recently became Professor of Advertising at New York University, he was Director of Research for the Periodical Publishers Association of America, so that his experience and knowledge are not of the theoretical, pedantic type. The presentation is not didactic, but is an easy setting forth by example after example of where cooperative advertising has been tried and found eminently satisfactory in producing the results desired. The style is of the popular magazine variety and in places it lacks the reserve one would wish from such an authority, but the author's immersion and enthusiasm, the dearth of reference books on this particular subject and the subject itself account for this popular treatment.

The book tells how markets have been expanded, prejudices overcome, industries saved from competition, sales seasons extended and communities promoted through the cooperative efforts of trade association and community organizations. Methods employed in recent successful advertising campaigns are given and the pitfalls which some unsuccessful campaigns encountered are pointed out.

Mr. Agnew draws a careful distinction between what advertising competitors may do for their own benefit and that done by such cooperative marketing associations as the California Fruit Growers Exchange, the Sun-Maid Raisin Growers, the Oak Flooring Manufacturers Association, etc. One chapter traces the development of cooperative advertising and another outlines somewhat in detail the so-called habit-forming campaigns, of which that of the Society of American Florists and Ornamental Horticulturists is typical—"Say It With Flowers." Another campaign to receive considerable attention is that conducted by the Paint and Varnish Manufacturers who promoted a habit with the slogan, "Save the Surface and You Save All."

One phase discussed is how to protect an industry from outside attacks, which is well illustrated by the work of the Coffee Roasters Association which had to meet the attack of the ill effects of coffee on the human body. Another chapter

shows how to correct bad trade practices as shown by the Rubber Association of America three years ago. Examples of community advertising are given, as well as cooperative advertising in the churches—a place where it is certainly needed.

The essential facts as to raising money are set forth and advice is given as to expending it for these campaigns. The author does not defend large expenditures for this purpose because in view of the results obtained, no defense is necessary. He allows the reader to judge for himself whether or not it pays to advertise cooperatively. The answer is inevitably in the affirmative.

In a review of this kind too often the value of the preface or foreword is omitted. Mr. Agnew states in two pages very clearly that since the handing down of decisions in the Tile Manufacturers Credit Association and the Maple Flooring Manufacturers Association cases by the United States Supreme Court, the ability of competitors in the same industry to advertise cooperatively the product of that industry has been declared legal. As a result, association advertising has been given a great impetus and today it has become one of the first and foremost kinds of national advertising. This can be easily verified from the advertising pages of any current periodical.

The book is fully illustrated with reproductions of advertisements that supplement the text, and a valuable feature is found in the various tables scattered here and there throughout the volume. One lists the number of families necessary to support a certain kind of store; another gives the approximate yearly advertising expenditure of cooperative advertising by various associations. The book covers the subject thoroughly and while it does not develop any particularly new facts and ideas, yet in it are gathered together all the existing evidence to make a complete whole.

One's only regret is that Mr. Agnew has not at times treated the subject in its broader aspects, showing its social and economic implications. The book certainly "sells the idea" but one wishes that the presentation had been developed more fully from all of its interesting and relative angles. However, the book in no way disagrees with any of the recent articles or books on advertising which have frequently been appearing in the last few years, and is by far one of the best books on advertising which has been written. It is well worth one's serious attention and study.

E. H. NAYLOR*

Salesmen in Marketing Strategy. By Leverett S. Lyon, The Macmillan Company, New York, 1926, pages xi, 422.

Several serious attempts have been made recently to produce a satisfying work on sales management. Most of the attempts have been thorough, but all have been inadequate. The reason for this inadequacy is that the problem of sales management in any merchandising organization is likely to be quite different from that in any other organization even in identical businesses.

*Author of "Trade Associations, Their Organization and Management."

The writer of a book on sales management is very likely to be forced to the production of a work more or less encyclopedic. When he starts his research or surveys the material available he is immediately face to face with the truth that in any department of his subject there is very diverse practice. He therefore is compelled to set down the data and let the reader adjust the facts to his own needs.

It is interesting to discover that a writer has now attempted to deal with the subject from an angle which is somewhat different. Professor Lyon has discovered some situations that exist in every sales department and has tried to develop these situations logically.

The author's purpose, to use his own words, is to make the book "of use to three classes of readers: college and university students, sales managers and salesmen, and economists."

Professor Lyon has had long experience as a teacher of the various branches of marketing and "Salesmen in Marketing Strategy" was written and rewritten in connection with his courses. In so far as any book on such a subject can supply a teacher with material for classroom use the book will serve a very useful purpose.

In making his appeal to active sales executives Professor Lyon offers some thoughts and plans that may be new, but he believes that the greatest value of the work for such readers will be its analysis of the task of constructing and using a sales force and the relating of the use of this tool to a wider marketing strategy.

The author's appeal to economists is on the basis of their increasing interest in realism and to offer some aid in an adequate explanation of how values are made and exchanges effected.

The book is developed in six divisions:

Part I has to do with Marketing Programs, Strategy and Instruments.

Part II deals with The Salesman Instrument.

Part III takes up the Preparation of a Sales Force.

Part IV goes into Planning the Operations of a Sales Force.

Part V tells about Operating the Sales Force.

Part VI considers Organization for Salesmen Management and Control.

The saneness of Professor Lyon's treatment of his subject is indicated by this excerpt from his chapter on The Determination of Objectives which falls in Part IV of the book:

"The idea of objectives has commonly had marketing use in the so-called 'salesmen's quotas.' To say the least, this use is an unfortunately limited one and one likely to be harmful in other ways. The salesman's quota, being considered as something applying only to the salesman, has been harmful as such quotas have all too frequently been used chiefly as stimulating and driving devices. The better sales executives have seen the weakness of this, but nothing is more common than the sales manager who still assumes that a quota is simply a lure or a spur. Among the more serious possible dangers of such a use are dissatisfied men and over-stocked distributors."

The book cannot fail to be serviceable to all three of the groups for whom the author devised it. Where research has shown variety of practice Professor Lyon has given the various practices. Where dangers are sensed in connection with certain practices the author shows the dangers.

H. B. RATHBONE⁷

The Widening Retail Market By Horace Secrist,
A. W. Shaw Co., Chicago, 1926, pages viii, 186.

Students of distribution have observed noteworthy changes in the retail market during the past five years. These changes have been brought about in part by changes in the social habits of consumers. There has been a development on the part of a wider circle of purchasers of a style consciousness; there has been an influence exerted by national advertising; and there has been an influence caused by widespread traveling, the increase of which, within the past five years, has been very marked.

Aside from the changes in the retail market caused by changes in buying habits of consumers, the retail market in recent years has also been tremendously affected by changes in certain forces directly affecting distribution. From the production end, the improvement of manufacturing technique has resulted in lower unit costs and necessitated a wider market to achieve full distribution. The necessity for wider domestic markets also has been urgent for manufacturers of certain products because of the reduction of sales caused by diminishing exports. The hand to mouth buying practices of retailers, the recent rapid changes in certain formerly staple commodities because of style, making it necessary in some lines for manufacturers to deal directly with retailers rather than through jobbers, and the competition department stores and other types of retailers have had to face from mail order organizations and chain store organizations have all had their influence in effecting certain changes that have been taking place in the distribution process of the retail market in the past few years. All of these influences have been reflected in some changes in the buying habits of consumers.

Consequently, one naturally would suppose that a volume bearing the title of "The Widening Retail Market" would deal at least with some of the important factors that have brought about recent changes in the retail market, only a few of which are indicated in the foregoing paragraphs. The volume under review, however, does nothing of the sort. It presents statements of what purport to be the buying habits of consumers in the market represented by men's clothing and men's furnishings. The title is misleading and one should have been selected that indicates the contents of the volume.

The author obtained information concerning the purchase of men's clothing and men's furnishings from 4,643 persons representing 2,413 students and 2,230 of their fathers, residing in or adjacent to 1,093 villages and cities.

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